APRIL, 1951

American Engineer

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IN THIS ISSUE . . .

FROM DULUTH TO THE SEA

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THE ST. LAWRENCE SEAWAY

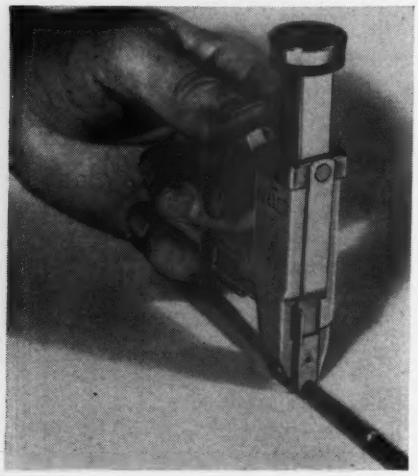
This International Section Water Flow Will Be Harnessed For Power

NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS
FOUNDED 1934

What's New

As a service to our readers, this column will describe briefly new product developments of general interest to professional engineers. When writing manufacturers, we will appreciate your mentioning the American Engineer.

● Tiny as a toy, yet efficient as a large industrial staple tacker, a new pocket-size tool has been developed by the Heller Company of Cleveland, Ohio, to effect new saving of time and money in making wire installations.



This new tacker speedily staples braided, rubber-coated, single and double strand wire and hollow tube lines. Front and rear guides circle the wire and permit rapid drawing around difficult angles or corners, along baseboards, plaster walls, window frames, ceiling, door jambs and rafters.

It uses an improved staple, made in several colors, whose driving points easily penetrate plaster, composition board, hard and soft woods (with holding power up to 64 lbs.). Drives the staple to a desired depth without marring or injuring the wire.

Both the tacker and staples are designed to exacting A.T. and T. specifications, and are now used for low voltage telephone wiring throughout the Bell System.

The tacker can be handily carried in the pocket for use on such jobs as television, radio, burglar alarms and intercommunication systems, as well as many other uses. For further details write The Heller Company, 2154 North Superior Avenue, Cleveland 14, Ohio.

● A ready means of determining atmospheric pollution is available with the simple and inexpensive activated carbon gas and vapor absorber recently developed by the W. B. Connor Engineering Corporation of Danbury, Connecticut.

The collecting device consists essentially of dual, perforated, activated carbon-filled canister assembled integrally with a motor-driven air blower. By operating the collecting unit continuously in a contaminated atmosphere for a known duration, the total volume of air that has passed through the carbon in that elapsed time is known. Likewise the absorbable impurities entrained in that volume of air will be collected by the carbon. The canisters are then separated from the unit, sealed and returned to the laboratory for reactivation, i.e., the extraction of absorbed impurities.

Complete data and information on analytical methods and procedure may be obtained from the W. B. Connor Engineering Company, Shelter Rock Lane, Danbury, Connecticut.

● Rolagrip couplings for plain end pipe are now listed by Underwriters' Laboratories, Inc. for use on water, fire and sprinkler lines. Wherever a pipe coupling is made, Rolagrips save time and pipe coupling is made. Rolagrips save time and labor, because Rolagrips require no threading, grooving, flanging or any other special preparation of the pipe ends.

To inspect, repair or clean out a Rolagrip union, it is a simple matter to loosen the two bolts of the Rolagrip coupling — no special tools or skills are necessary. Then you can reapply the same Rolagrip, because they can be used over and over again. Rolagrips are flexible—they permit misalignment of pipe ends up to 7 degrees. They withstand shocks, jolts, vibration, expansion and contraction and end-pull. For further information write the Gustin-Bacon Manufacturing Company, Kansas City, Missouri.

● Introduction of a new self-adhesive metal nameplate requiring no pre-drilling of holes, screws, rivets or other fastening devices has been announced by the C & H Supply Company, Metal-Cal Division, of Seattle, Washington.

Backed with a high tensile bonding material, Metal-Cals can be quickly applied to any smooth, cohesive surface on metals, procelain, bakelite, polysterene, glass, wood, paints or enamels. Permanent clarity and legibility of Metal-Cal letters and characters are assured by the processing which makes them a part of the aluminum foil itself. Metal-Cals are available in any one of five colors—brown, red, black, blue, green—plus aluminum. Samples and complete technical data are being furnished upon request to the C & H Supply Company, Metal-Cal Division, Boeing Field, Seattle, Washington.

● A new, self-propelled saw for cutting concrete and asphalt has been announced by Concrete Sawing Equipment, Inc., of Pasadena, California. Known as the Model 51 Self-Propelled Concut, this new sawing machine is used for sawing streets, concrete floors, airport runways, etc., prior to the breaking and removal of the material, thereby assuring a smooth, straight edge for patching. Other uses include sawing contraction joints, sawing for the installation of expansion joint, grooving for crack control, grooving ramps and steps for safety, etc.

The self-propelled feature increases the life of the cutting blade and speeds the sawing operation. Other features include a dash panel showing water pressure gauge, spindle speed tachometer, motor throttle, cut-off switch and transmission control level. Cutting depth is determined by the size of the blade being used. Further information may be obtained by writing Concrete Sawing Equipment, Inc., 15 North Oakland St., Pasadena 1, California.

American Engineer

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"The human individual is still the center of the universe and is still the sole reason for the existence of all man-made institutions."

—General Eisenhower

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EDITORIALS

A "Whipping Boy" . . .

Our attention was recently directed to a letter written by Mr. Oliver E. Barthel, P. E., charter member of the Michigan Society, to the Editor of the Detroit *News*. Mr. Barthel's letter was in answer to an item which appeared in the column of Commentator W. K. Kelsey quoting W. B. Embler of Copper Union as saying, ". . . that it would be morally wrong for him to advise engineers to read classics in this age." Kelsey stated in a later column that he, personally, did not know whether or not it would be morally wrong, but suggested that the advice would be superfluous, since he had never heard of an engineer who read a classic. In replying, Engineer Barthel stated that he had read and studied many classics and was a very interested member of a local discussion group dealing with "great books on basic problems." He added that several other engineers were members of the same group by choice and not compulsion.

Unfortunately, Kelsey's attitude is one which has been expounded by many writers who are unfamiliar with the profession and is one that is in turn believed by the readers of these "authorities." Too often we have seen the profession made the "whipping boy" for uninformed laymen.

Let's take an honest look at the profession's alleged lack of culture. The engineering profession well knows that the curricula of many engineering schools are deficient in the humanities, particularly on the classical level. However, this lack is found in many other courses in addition to engineering. How many students of Liberal Arts colleges, for example, majoring in History, Psychology, et cetera, receive an adequate background in the classics other than material assigned in their special field?

In addition, the profit motive largely colors education today. A classical education was fine for the wealthy sons of plantation owners, but today an employer wants to know how highly trained you are in your field, not how much Aristotle you can quote. This educational change is one of the prices of material progress, and the engineer is no more a victim of the system than many other business and professional men.

Another section of Mr. Barthel's letter comes even closer to the heart of the matter when he says, "Every one who is educated at all is, and must be, self-educated. Teachers or institutions of learning cannot inoculate the student with knowledge, neither does a student get it by absorption. There should be no distinction between self-educated men and others, for intelligence is something that you are endowed with and cannot be taught."

Educators today realize that the primary value of any sort of education, liberal or professional, is to train the student to *think*, not spew forth a collection of painfully accumulated facts at examination time and promptly forget them. Mr. Kelsey should know, as Mr. Barthel obviously does, that the thinking man develops an inquiring mind, and if he has not had the opportunity to study certain subjects, he will ferret out this material for himself. This is true not only of the engineer, but of everyone regardless of whether he has received college training or not.

Another point to be considered is that classicism, *per se*, is valueless unless we can apply the principles gleaned from such study to our present civilization. Being able to recite the date of Caesar's Rubicon crossing does not mark an intelligent man, but being able to utilize the story of the Roman Empire in terms of modern government does.

It is unfair for anyone to suggest that the engineer, anymore than anyone else, does not read the classics. Sloth and indifference can block anyone from furthering their self-education, but these two traits are not confined to any one group of people. When a writer can present factual evidence that the engineer is less well-read than other business or professional men, then his statements can be accepted as authoritative.

The Precious Right . . .

A recent report of the Tellers Committee showed that only 35.7% of NSPE members voted in the recent election of 1951 officers. It's true that this is a very good percentage as far as most organizational voting goes, but a better turn-out should be expected for a professional society election. The election of good officers and the inclusion or exclusion of constitutional amendments is a matter of vital personal and professional concern to every member of NSPE.

The old expression "stand up and be counted" may well be applied to voting. The man who does not vote has no right to complain if the man he thinks should hold office does not get elected or if his organization does not function as he thinks it should.

The right of suffrage is a precious one that men have fought and died for throughout history. In his 1885 inaugural address, President Grover Cleveland said that every vote exercises a public trust. *Your* vote in an NSPE election exercises a *professional* trust.

It's Not All Over . . .

General of the Army George Catlet Marshall, worried about public and congressional let-up in the preparedness effort, is today pleading for cold reasoning and wisdom in planning for the years ahead. An emotional response to a changing daily situation, says the General, can prove fatal to our national existence.

Engineers, trained in reasoning, should, of all people, realize the danger of failing to formulate a level-headed, realistic plan for defense. Accustomed to supervising plans through to a finished project, engineers appreciate the necessity for constant watchfulness to see to it that defense plans are properly carried out.

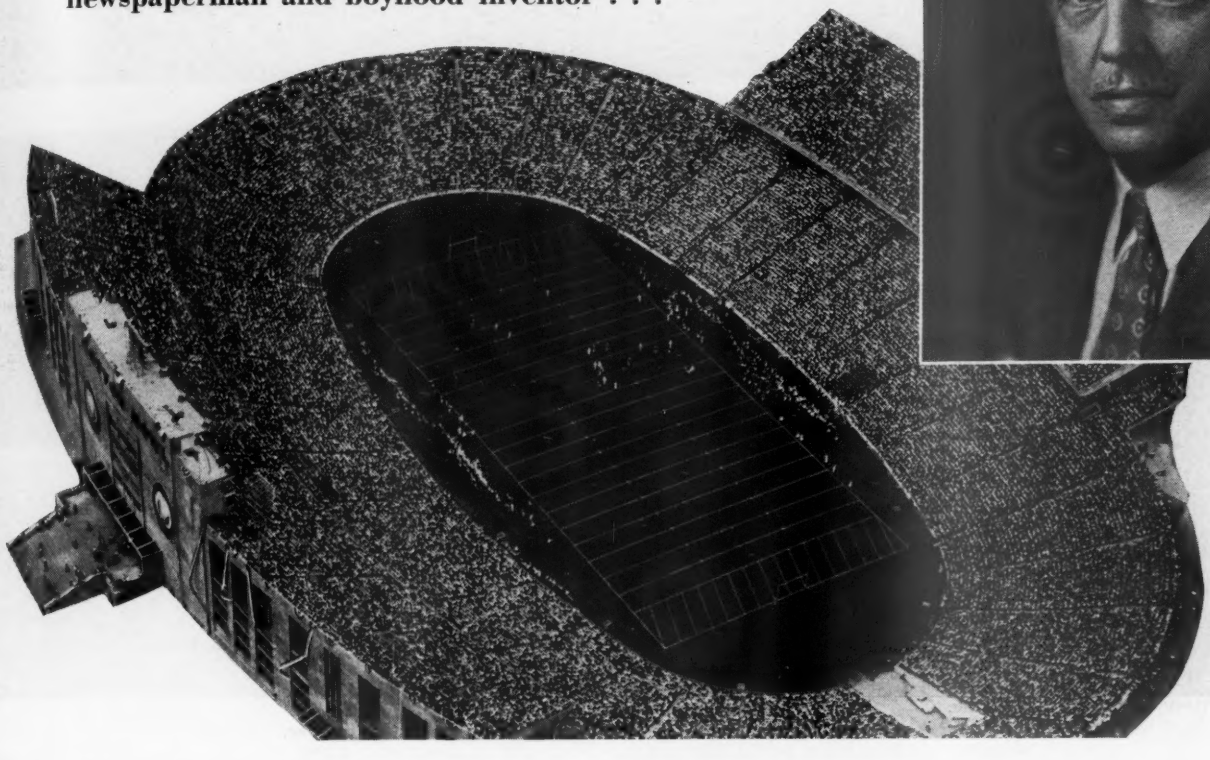
In spite of the fact that our best informed authority tells us that we are facing a minimum of ten years tension, a noticeable relaxation has taken place throughout the country in the past few weeks. Public and congressional sentiment has become cooler toward defense legislation and action demanded only a little while back.

It is the duty and obligation of every engineer to use his training, knowledge and influence not only to have an adequate defense program adopted, but to demand that it be carried out.

We'd Like to Have You Meet . . .

Frank W. Chappell, P.E.,

Member, Texas Society . . . President, Dallas Chapter, TSPE . . . Eminent Engineer . . . Sigma Chi and Kiwanian . . . Ex-newspaperman and boyhood inventor . . .



PERSONAL charm, a keen sense of humor and a variety of interests mark the man we salute this month—Mr. Frank W. Chappell, prominent Texas engineer and member of the Texas Society. Born in Tennessee, the son of a Methodist minister, his boyhood ambitions included progressively being a "street car driver, soldier, newspaper man (worked at this for a while), lawyer and ENGINEER." Even in his youth Chappell showed signs of engineering tendencies when he designed such gadgets as a foot operated switch button under the dining room rug to summon the maid. This was run "on storage batteries which I made in fruit jars with zinc, carbon sticks and a salammoniac solution."

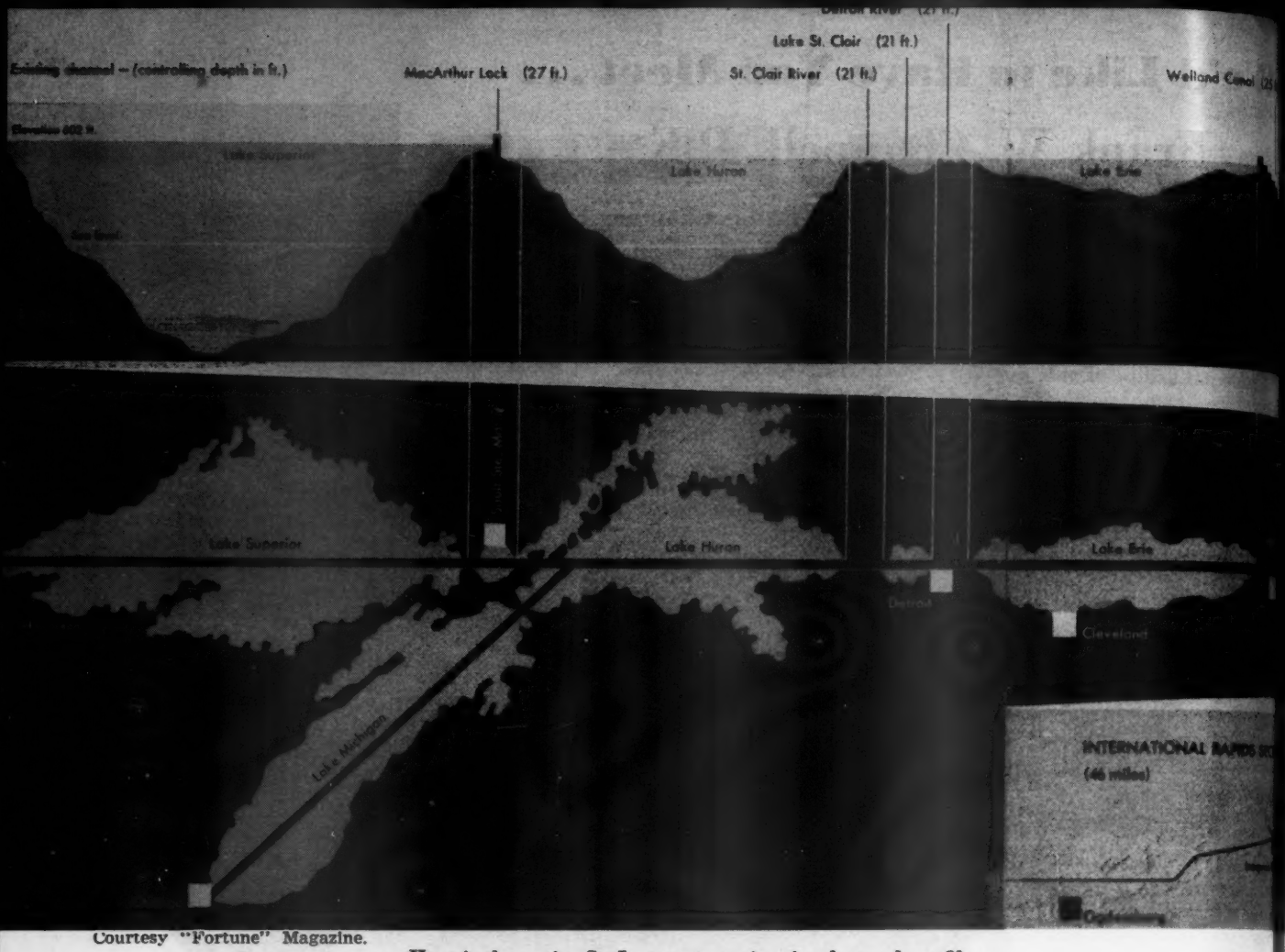
Upon his graduation from Vanderbilt University with the degrees of B.A. and B.E. in 1905, Chappell worked on various railroad, sewer and water projects in Tennessee, Kentucky and Arkansas. In 1919 he entered into a junior partnership in the Henry Exall Elrod Company of Dallas and here designed a number of dams, the most notable of which is the reinforced concrete structure at Cisco, Texas. At the time of its completion in 1924, it was said to be the largest hollow concrete dam in the country, a claim Chappell never bothered to investigate. He became a consulting engineer in 1931 and has practiced continuously since that time with the exception of the period from 1934 to 1937 when he served with the PWA as Engineer Examiner in the office of the State Engineer.

Chappell considers the Cotton Bowl to be the most spectatcular piece of work with which he has been connected. The original bowl was a cut-and-fill affair built in 1930, but erosion under the wooden seats and its limited capacity soon dated it. In 1947 many new football stars appeared in the Southwest and the demand for more seats in the Cotton Bowl became insistent. But more seats could not be built until the old ones (45,500) had been stabilized. Accordingly, contracts were awarded in late 1947 and early 1948 to the Chappell, Stokes & Brenneke Company of Dallas for the concreting of the old bowl and the addition of about 22,000 seats, with all the necessary facilities, including a press box. The latter was designed by engineers, of course, but only after consultation with the best available men in their several lines—newspaper and wire service reporters, telephone engineers, Western Union engineers, radio and television broadcasting specialists, public address men, etc. The result is a three story structure having about 350 seats and stations from about 25 to 30 cameramen. In 1949 the seating capacity was increased to 75,500 by the addition of a second deck on the east side of the stadium.

Chappell's interests include either listening to or attending football games, grand opera when the Met comes to Dallas, summer operetta and Dallas' professional drama group, Theatre 50-51. In addition, he plays golf, gardens and works with the committee for underprivileged boys of his Kiwanis Club.

Chappell advises the young engineer to make of himself a good, sound engineer, technically and adds that this requires constant study. "Human engineering" or public relations he considers to be equally as important. "An engineer should be a politician in the better sense of the word, for a politician is just a person who can 'make friends and influence people'."

Evidently he lives his own advice, and we proudly hail Frank Chappell, the man who is above all "human" and an engineer.



Courtesy "Fortune" Magazine.

Here is the entire St. Lawrence project in plan and profile.

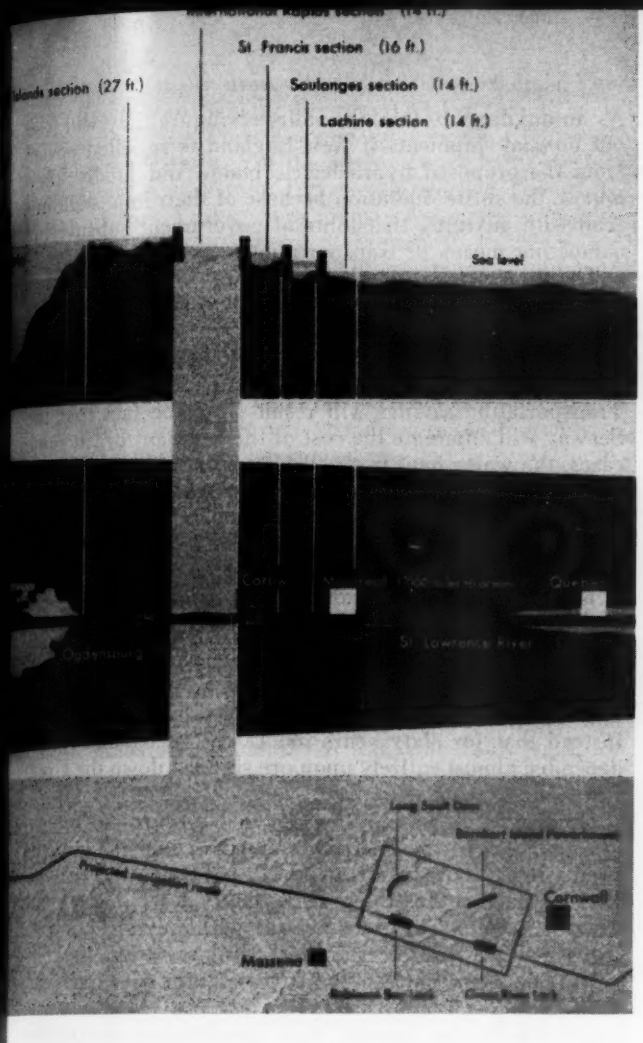
FROM DULUTH TO THE SEA

The St. Lawrence Seaway Project Has Been Talked About For Years. Now That It May Become A Reality, Engineers Should Know More About It.

"THAT socialistic ditch." "Old economic monstrosity." "It is essential, even vital, I believe, to the national strength and security." "We must have the Seaway for iron ore."

The above quotes by famous people represent some of the expletives or sound truths (depending upon which side you are on) that have come forth recently in official discussions regarding that fifty-six year old political football, the St. Lawrence Seaway. Though battered, tattered and torn, probably the most controversial issue ever to shake the halls of Congress is still a frisky old gentleman and, indeed, is right now giving proponents and opponents a lot to talk about. Administered a new infusion of life by the depletion of Minnesota iron ore deposits and the national defense issue, the waterway project is closer now than ever to being a reality. Because professional engineers have long figured prominently in the Seaway debate, and because, if it is authorized, it will be a near billion dollar affair to be primarily handled by engineers, the profession should take time now to study something of this huge project's history and future.

To the layman and even to many professionals, the thought of making a ship channel 2,650 miles long—the length of the proposed Seaway from Duluth to the Atlantic Ocean—borders on the impossible. Actually such a channel exists for about 95 per cent of that distance, and it is the completion of the job started by man and nature, that has been a favorite debate topic for many years. Outside of simple dredging, the bulk of the work to be done is on the 120 miles of the St. Lawrence River running between Ogdenburg, New York, and Montreal (see maps). Along this route will be built a large dam, powerhouse, three locks in the International Section of the St. Lawrence River, four locks in the Canadian Section, and dredging in the various reaches. This will cost, according to Major General Lewis A. Pick, Chief of Engineers, U. S. Army, around a billion dollars with the United States paying 6 million and the Canadians about 4. Inasmuch as Canada has already spent 132 million and the United States 32 million on existing works comprising integral parts of the project, the cost to complete the project is estimated at 800 million, of which this country would pay out 573



million and the Canadians 230 million.

The legislative history of the Seaway is long and involved. As early as 1895 Canada and the U. S. set up a Deep Waterways Commission to study the Seaway problem. This group reported favorably. In 1909 was established an International Joint Commission, and, after having its work interrupted by the war, it too reported favorably. In 1924 President Coolidge appointed a U. S. Commission with Herbert Hoover as chairman. About this time a Joint Board of Engineers developed complete plans for the project and reported favorably which resulted in a treaty being signed with Canada in 1932.

In February, 1933, the Senate Foreign Relations Committee reported favorably upon ratification of a treaty authorizing the project, first in the form of treaty ratification and then in the form of approval of an executive agreement between Canada and the United States. The resolution on ratification received a majority in the Senate in 1934 but, requiring a two-thirds vote, failed of Senate approval. In 1941, an *executive agreement* was signed with Canada to promote the works. This was a astute move by Franklin D. Roosevelt, inasmuch as an agreement required not a two-thirds Senate vote but a simple majority of both houses for approval. But getting a majority in two houses is not a simple matter when dealing with such a touchy thing as the Seaway and, realizing this, FDR nearly ended the Great Debate for all time by using his personal wartime powers to get the project built by Executive Order. But the Executive Office was out of funds and the President was forced to ask the Army for money. Washington intelligence at the time was that Under Secretary of War Patterson and supply chief Lieutenant General Somervell, argued the Chief Executive out of going ahead on the grounds that there were more important things to be doing during wartime than building the Seaway.

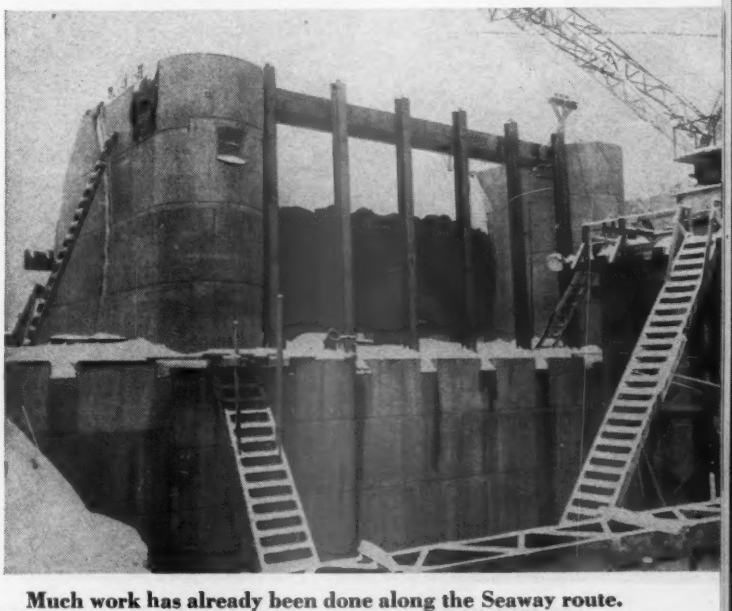
By 1947 the project was once again being discussed by a handful of legislators but it was not until the respected Senator Arthur Vandenberg introduced a new feature on the Senate floor that the proponents and opponents rolled out their big guns. The new idea as voiced by Senator Vandenberg provided for the navigation portion of the Seaway being made self-liquidating and self-supporting by charging tolls. Although charging tolls was against the Canadian national policy, they finally agreed if only to secure some kind of action. (The Canadians' patience is beginning to wear thin on the whole project inasmuch as they felt the signing of the 1941 agreement was the final go ahead needed.) But no action was to come, for all resolutions approving the Seaway gathered dust in committee.

In 1950 President Truman let it be known that his administration wanted the Seaway and power project. Some of his leaders, though, let it be known that they didn't want it. Senator Tom Connally, chairman of the Foreign Relations Committee, long opposed to the project presumably because of Texas railroads and ports, even refused to appoint a subcommittee chairman. At last he did appoint ex-Senator Tydings of Maryland who, thinking of his own Port of Baltimore, immediately forgot about the new job.

The House worked up more fervor. Secretaries of interested government departments testified for the project. The then Defense Secretary Johnson, though, was somewhat cool, and this coupled with the lack of interest of the Senate, caused the House to end its session with little accomplished. At the present session the House has again shown the greater interest toward the legislation, and the testimony of proponents has already been given. Those against are scheduled to begin reciting their side of the story about the middle of this month.

For The Opposition

Like many another issue in our history, the St. Lawrence Seaway and Power Project has developed some strange bedfellows. To fully understand how this has happened it is first necessary to define why those who are for the project feel the way they do, and why those against are equally stubborn. What as the proponents see it, are the benefits of the project? These have varied over the years



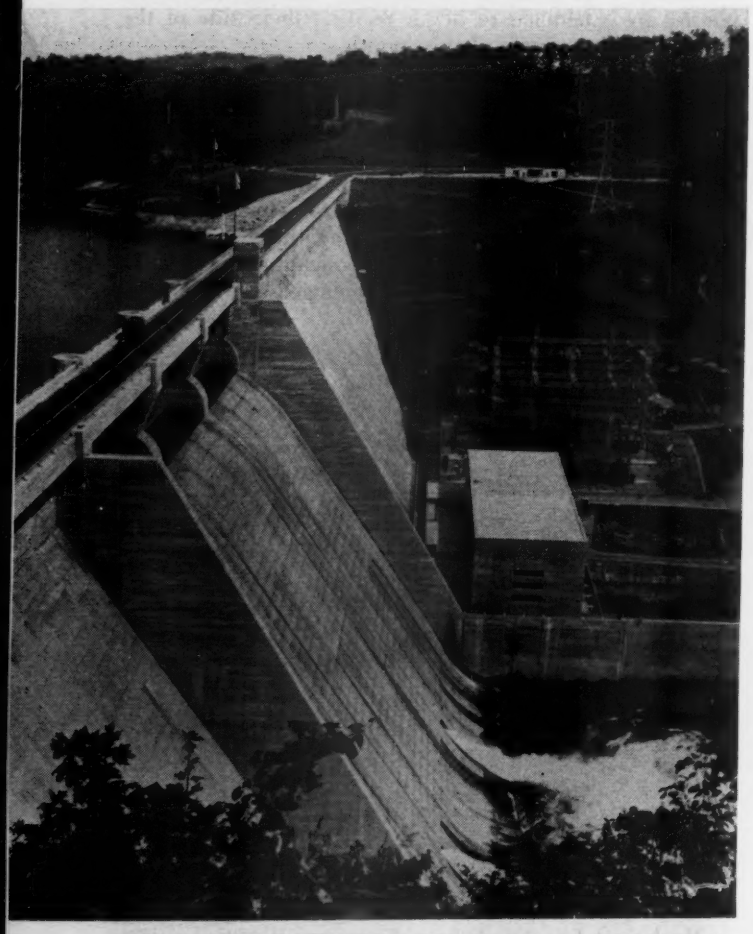
Much work has already been done along the Seaway route. Here is a new power plant at St. Mary's River, Michigan.

but they can now be divided into three categories: national security, navigation, and electric power.

The project is now being bedecked with the flag. It is pointed out that the rapid depletion of high-grade iron ore from the Mesabi range in Minnesota requires us to do some straight thinking, especially with war a possibility. At the present, most of our imported ore comes from South America. With this arrangement, the ore is shipped to such ports as Baltimore and then moved by rail to the Midwest steel centers. Another development is important here. American companies are now working rich new ranges of ore deposits in Labrador and it seems safe to assume that much of our future supply will be from that district. Now, if enemy submarine action should cut off the South American supply, and the Labrador shipments coming by the Atlantic to east coast ports are harassed, we could face disaster. In other words, the Seaway is needed to guarantee a supply of iron ore in an emergency, and the proponents are leaning heavily on this argument.

OPPONENTS cry that the entire defense angle is rediculous. How can the Seaway, they say, be of any use to us in case of war when it couldn't possibly be completed for years? The proponents answer to this, of course, is better late than never. The crux of the debate, though, is centered around iron ore and it is this important new aspect that is attracting attention.

Generally speaking, it is the railroads and the ports who oppose the shipment of ore down the St. Lawrence to the Great Lakes. The ports would lose on shipments coming along the Atlantic from Labrador, and South America, and the railroads would not move them any great distances.



The project provides for a dam and power plant in the International Rapids section. This is the Norris Dam, TVA.

As an auxiliary to this, the railroads figure they will lose out on coal shipments if New England is supplied power from the proposed hydroelectric plant. And finally, they oppose the entire operation because of their long-standing feud with anything that hints of government subsidy for competing means of transportation.

The proponents claim that the Seaway will provide great navigation benefits. It will result in substantial reductions in the cost of transportation between the Middle West and foreign ports. Likewise, it is said, it will permit large vessels to operate between the Lakes and United States seaports. Transportation savings will result from the fact that the Seaway will eliminate the cost of the rail haul or, in some cases, the water haul in small high-cost carriers, between Midwest points tributary to the Great Lakes and Atlantic coast ports, as well as the transshipment charges involved. (See map, page 9.) Direct shipments from the Great Lake ports to foreign countries can be made at costs only slightly higher than those prevailing from Atlantic Coast ports.

THOSE against proclaim that the Seaway is frozen over five months of each year and out of action. Those in favor are hard pressed to refute that statement so they point out instead that for sixty years the U. S. Steel industry has depended almost entirely upon ore shipped down the Great Lakes in the open season.

Opponents also stress the fact that upwards to ninety-one per cent of our merchant marine could not use the twenty-seven foot channel depth. In his statement, General Pick claims that the present Great Lakes fleet could operate over the twenty-seven foot Seaway without restriction. As for sea-going ships, certain practical considerations involved in operating sea-going vessels, the General says, tend to increase appreciably the number of vessels that could transit the Seaway if a twenty-seven controlling depth were provided.

The Maritime Commission has stated that under such practical operating conditions practically every type of vessel in the American merchant fleet with the exception of very large trans-ocean ore carriers and super tankers could transit the twenty-seven foot Seaway.

What of electric power? Plans calls for a 2,200,000-horsepower hydroelectric station in the International Rapids section. (See maps.) Not only is there a huge volume of water running downhill here (see cover background photo) but the year around evenness of the flow is almost as important. This means that at no time, even during dry months, will large amounts of generating capacity stand idle. It is figured that the U. S. will spend about $188 million for its half of the power project and that 5.8 billion kilowatt-hours of electricity will be available each year at a cost of 2.92 mills per kwh.

IT'S a fact that power is so high in the northeastern U. S. that industries consider moving out, and new firms refuse to move in. Electric customers in New York State pay 26 per cent more for electricity than the national average and use 20 per cent less. This in no small way accounts for the fact that every New York governor since Al Smith has been for the power project in spite of the fact that the Port of New York is opposed to it.

As far as the power project is concerned, the opposition consists of the public utility people and the coal industry. The utility men insist its just another way for government to get its hand in private matters, and, of course, the coal-men see a loss of sales if cheap power is made available through a hydroelectric plant. It follows, then, that the railroads add their weight here as well in view of the shipping they would lose from the coal fields.

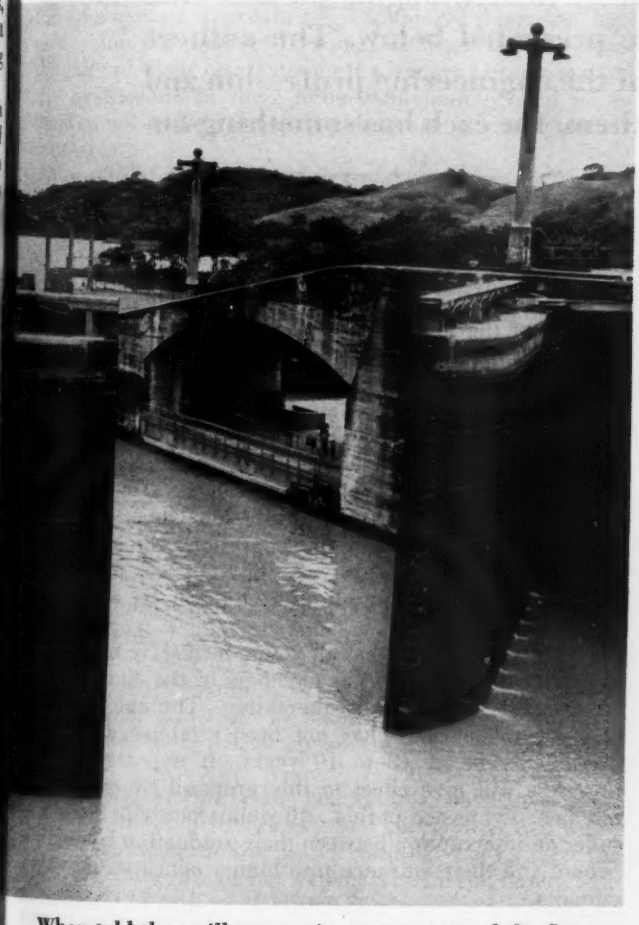
As stated previously, the St. Lawrence Seaway legisla-

tion has made many strange bedfellows. For example, Vermont Republican Senator George D. Aiken, wants inexpensive power for New England as does the CIO, *et al.* The highest executives of the coal industry battle against the Seaway as does John L. Lewis. Governor Thomas E. Dewey of New York pushes for passage of the waterway as does his opponent, Harry S. Truman.

The St. Lawrence Seaway still has much strong and well organized opposition and, although such new arguments as national security and tolls to pay the way have been introduced, those fighting for the project still see a long hard road ahead. But, in moments of strength, they point out that the TVA and even such old developments as the Panama Canal, met with scorching opposition only to win out in the end. The opposition, on the other hand, feels it can fight a long and very effective delaying action, and anyone must admit that they have a lot of experience upon which to base their optimism.

If the go ahead is forthcoming, very little time would be lost. The Corps of Engineers says that general plans and specifications have been prepared on the entire dual-purpose project. For all initial construction features including access facilities, transmission lines for power, and so forth, as well as initial work on the main dam, powerhouse, and navigation structures, contract plans and specifications are on hand. For the Long Sault Dam, for example, the general plans, specifications, and design analysis have been completed. The plans and specifications, says the Corps, are sufficiently complete to permit advertising for bids for the construction of the dam and its flanking earth dikes.

Will Congress say "yes"?



When told they will never win, proponents of the Seaway say that the Panama Canal (above) was a long time coming, too.

Ports like New York are opposed to the Seaway.

High-grade iron ore deposits at Mesabi (above) are being depleted. Proponents say we need Seaway to inexpensively supply Midwest steel centers with Labrador ore. See map below.

with a panel including

Reserve Officer . . .

Col. Charles P. Smith, U. S. A. R.

Young Engineer . .

Daniel B. Clendeni

Subject: Engineer Student–To War or School

In the March Issue of the AMERICAN ENGINEER and again in the April issue there appeared "Think" articles dealing with various aspects of the engineering manpower problem and its relationship to national defense. Being a controversial subject, the articles evoked many letters from readers who wished to express their thoughts on this vital issue. Four of the pieces received are presented below. The authors are men working in different fields of the engineering profession and we are pleased to open our pages to them, for each has something important to say.

Colonel Smith . . .

"CONGRESS shall have Power. . . . To raise and support Armies . . . " Thus does the Constitution of the United States, in Article I, Section 8, lay the foundation for national defense. Implicit in these simple words is the obligation of every male citizen to bear arms in the defense of his nation, when the security of that nation is threatened by the actions or evident intentions of an aggressor. This is the fundamental responsibility of citizenship in a democracy. All other considerations in time of danger to the republic must be subordinated to it, or be in consonance with it.

The engineer, be he of professional status, in training or in academic halls, has the same privileges and responsibilities of citizenship as any other individual, professional or non-professional.

It was distressing to one who has served nearly a quarter-century in the civilian components of the United States Armed Forces, and who contributed more than five years in the prime of his professional career to active military service, to learn that service in our Armed Forces is considered a fate worse than death for the Professional Engineer. An article entitled "Universal Military Service versus Professional Engineering" in the February, 1951, issue of THE AMERICAN ENGINEER carries such implication, and further infers that assignment in the organized reserve will abort the professional and personal freedom of the engineer.

It is not the purpose of this discussion to debate the merits of Universal Military Service. That is a function of our elected representatives in the Congress. Our mission here is to focus attention on responsibilities and honorable solutions. There is too much of "let the other fellow serve," "business must go on as usual," "engineers and scientists must not be sacrificed in the armed forces" in the thinking and writing of professional engineers. Why not meet the challenge of a generation which will live dangerously if it is to survive? Why not seek practicable solutions which will permit the engineer to serve both profession and nation?

There is a proposal that all young men serve in uniform for about two years and as members of the civilian components for several years thereafter. The age at which they are to be called has not been established but will presumably be at 18 to 19 years. It appears that the Congress will give effect to this proposal by enacting it into law. Let us accept this. All young men will, therefore, suffer an interruption between their graduation from High School and their entrance into higher education or other pursuits.

The production line of engineers and scientists in our colleges and universities will be curtailed for an initial period of two years, and then inevitably will resume a full

neering Dean . . .

Dean R. D. Landon

Professor . . .

Prof. Anthony Hoadley

capacity output of embryo professionals. These will have served the required period of full-time military training and will be subject to an additional length of service in the organized reserve. Reserve training requirements will be moderate and will interfere in no serious way with professional work. Usual obligations of a reservist are to train on two to four evenings per month in the locality where he chooses to reside, plus fifteen days of annual active duty at a military installation.

As a reservist, the young engineer will find himself in the company of approximately 2,500,000 American men now voluntarily engaged in organized reserve activities, the bulk of them being among the leaders in business and the professions in their home communities, and all of them proud of the privilege and heritage of service to their country.

For a brief period of two years, the colleges and the engineering profession must accept an added burden. The former must plan in a financial way for a temporary shortage of students. The latter must work a little longer and a little more efficiently. The solution for the profession itself may lie in keeping the shoulders of those approaching retirement at the wheel for two years beyond the normal span of their chosen life's work.

By far the most serious challenge to the engineering profession during this extended period when the forces of defense are mobilized is that of the proper utilization of trained engineers and scientists. Professional skills must not be mis-used. Engineers in uniform as well as in mufti must be permitted to engage in work which requires their specialized talents. Selfish commanders or administrators cannot be permitted to retain technically trained individuals in non-technical assignments. The profession and the professional societies will have to remain constantly alert to this problem. It existed to a degree during World War II, and it remains with us during the current emergency situation. Unless we stand vigilant and vociferous on this point there will be abuses by selfish or thoughtless agencies.

Engineers of the past generations have met their patriotic obligations fearlessly and cheerfully. Are we of the current generation of lesser stature? Let us meet the challenge with courage, not weakness; with solutions which accept the obligations of citizenship, not the avoidance of duty.

And we might add that our government is "of the people" and is just as good or as bad as we the people may have made it.

About the Panel . . .

***Col. Charles P. Smith, U.S.A.R.*, is Turnpike Engineer for the Ohio Dept. of Highways. He is a graduate of Ohio University (Civil Engineering) and of the Army's Command and General Staff School. During World War II he served as a General Staff member on strategic and logistical planning. He was awarded the Legion of Merit for this work.**

***Daniel B. Clendening* is a mechanical engineering graduate, Class of 1948, Texas A&M. He is now with the Celanese Corp. of America (the youngest member of their engineering department.) An Air Force reserve officer, he served during the War as a navigator in the South Pacific.**

***Dean R. D. Landon* has long been in educational work. A graduate of the University of Cincinnati with a C.E. and M.S., he served during the war with the Science and Management War Training Program, U. S. Dept. of Education. He is noted for his research on tire tread wear and the yield point of malleable cast iron.**

***Anthony Hoadley* was graduated from Union College in Schenectady, N. Y., and since receiving his masters from MIT in 1925, he has divided his time between teaching and administrative work at Union. From 1942 to 1945 he was acting chairman of civil engineering at the school.**

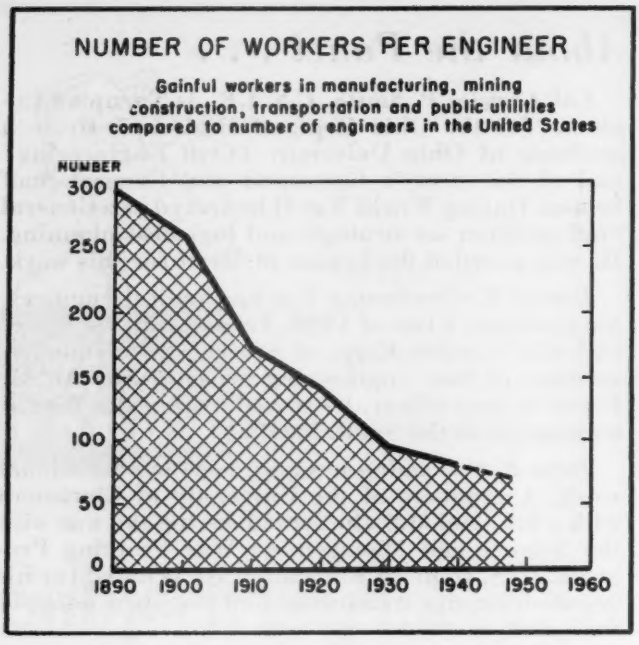
Mr. Clendening . . .

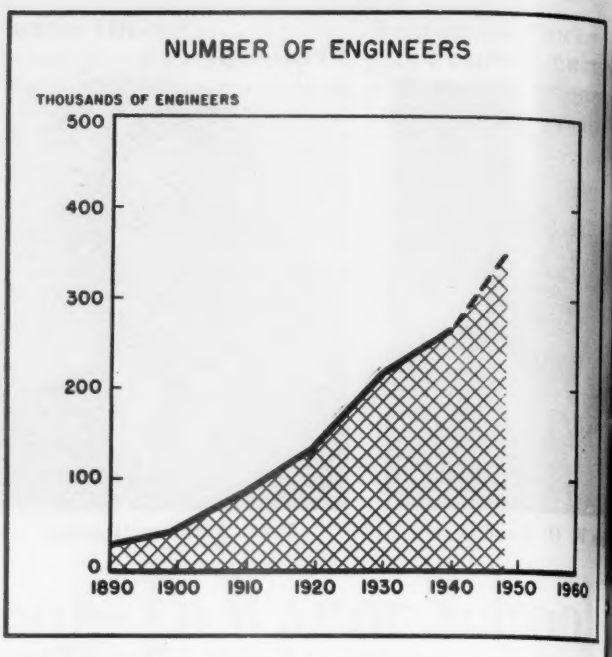
I READ with interest the article on Universal Military Service by Mr. Charles Delmar Townsend. (AE, February, 1951.) His estimate of the effects of military training on young men of this generation is an insult to their spirit and integrity. I do not know that I am in complete agreement with the presently proposed Universal Military Service Plan as I have not studied it sufficiently to say; but I do know that I can not accept Mr. Townsend's arguments for refusing it.

To begin with, the average young man at the completion of his high school studies is seventeen or eighteen years of age; not nineteen or twenty. True, it is at this age that a young man's ideas and ideals are like putty in the hands of his instructors whoever they may be; but it is also at this age that a young man has no family ties of his own and it is the easiest time for him to be uprooted and given the fundamentals of military training with least undesirable effect on his future life. In normal times, under the Universal Military Service Plan, he would leave military service at nineteen or twenty and graduate from college at twenty-three or twenty-four; old enough and mature enough to take his place in the industrial world.

I wonder if Mr. Townsend has taken into consideration the experience we have received from military service in the last war. Also, these young men, in the majority of cases, who went to school under the existing G.I. Bill of Rights, did not accept college training only because it was practically free, but because they thought it would enable them to provide for themselves and their families in a manner which would also be most advantageous to the country in general.

The Engineering profession gained many young men who would not have been able to secure a college education without government help. These same men are also now helping to pay for the education they received. I can assure the Engineering Profession that Mr. Townsend's statement that "He has learned from his period in the Armed Services that things are provided for him and





These charts show how industry has come to depend upon the engineer.

there's always a government to call upon for living expenses," will not set well with young veterans of today.

Mr. Townsend can also rest assured that young men who have received education at government expense do not feel that they belong to the government. This training was voted by legislators who should be putting into effect the desires of the people and was intended to be a reward for their efforts and a recompense for possibly having their educational training interrupted. It is true that many men who serve under universal military training will be in the reserves and subject to call at any time and such is the case today. But what could be a better means of defense than to have a stock pile of trained men available in times of emergency?

Young men who strive for an engineering education are seldom doing so because that is the most profitable way, materially speaking, of spending the years involved. Any young man of engineering capabilities could hire into industry as an apprentice to a skilled tradesman and at the end of four years demand a higher salary than the young graduate engineer.

In many cases during the past three years, young engineers could easily draw more money working as unskilled laborers than they could as junior engineers. However, the realization of this will not deter young men from training to become professional engineers.

Neither do I believe that universal ROTC is the answer to our present or future military needs either in active strength or reserves. Undoubtedly our colleges and universities would become crowded with young men who did not desire military service and possibly are not suited for college training. ROTC training is good and profitable but it does not compare with active military service and neither can it begin to fill all the needs of a standing army or an army in reserves.

To summarize, I believe that most young men are not harmed but are more likely to mature both physically and mentally by brief military service as they are too young to be thrust upon the industrial world. The older a young man is before he selects his profession, the more likely he is to make the most suitable choice. Last of all, those young men who are qualified to become professional engineers and are ambitious enough to do so, will succeed in this goal regardless of interruptions for military training, be it good or bad.

Dean Landon . . .

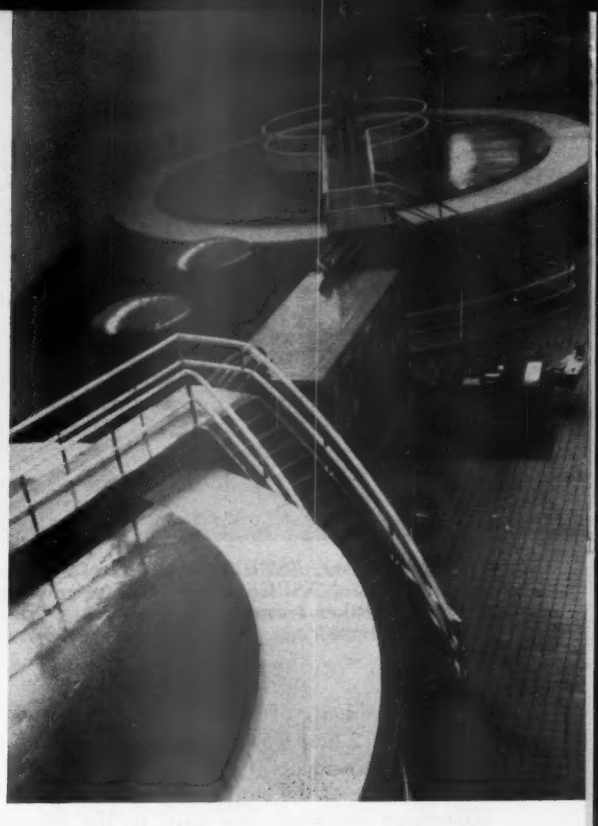
It is factual information that, for the first time, we are faced with possible military action against a power or a combination of powers which has definite numerical superiority. Our only hope for military victory or for the solution of post-war problems lies in our possession and effective utilization of "know how." Our industrial "know how" can result in the design and production of superior equipment in greater quantities, in less time, with less human effort, at less cost. All this requires trained minds and applied brains. Our diplomatic "know how" can result in workable agreements based on sound political and economic principles. This, too, requires educated minds and applied brains.

I assume that we are not just girding ourselves to stave off the military might of an aggressive Ursa Major but that we are preparing to defend and to promote our way of life and to make self-determination possible for other peoples. This is the biggest order we have ever undertaken to fill and it will require the complete development and most effective use of all our material and human resources. Its completion may well require at least fifteen to twenty years—half the span of a generation.

For this long haul, we cannot afford to postpone the development of our intellectual potential any more than we can afford to delay the development and production of new and improved materiel. In fact, we certainly cannot accomplish the latter without affecting the former. We shall need a continuous flow of outstanding basic scientists, professional engineers, technicians, medical doctors, economists, political scientists, linguists and journalists. Young people with outstanding abilities must continue their education now in order that they may serve their country most effectively. When their abilities have been developed, they can be inducted properly into the national defense program—whether the immediate need be in private industry engaged in defense production or in governmental service, military or non-military.

At some time, however, every physically fit male should receive military training and should serve in the armed forces of his country. The question is not WHETHER but WHEN.

(*Continued on page* 34)



There's Nothing Wrong With Engineers

By Dr. Jose B. Calva, P.E.,
Member, Minnesota SPE and NSPE

WITH almost regular periodicity, the engineering readership has been probed by such lamentful questions as "What's wrong with us engineers?", "Are we professionals?" and "What is a profession?". With the repetition of such queries, we may eventually see beautifully written treatises on such themes as "What is a tradesman?", "What is a layman?" and even "What is engineering?". And all this for what?

These fret-ridden articles, mere variations of the same theme, reveal a strong inferiority complex in the engineer as a result of the imaginary disparity in his acceptance by society in contrast with that supposedly extended to the "classical professions," such as theology, medicine and law.

It is curious to note the various angles from which the same subject has been presented. One article suggested that our professional handicap is due to the word itself, inasmuch as it was derived from the word engine. Another source tells us that our whole situation is due to our lack of a "respectable definition for the word profession."

My contribution to this misinterpreted subject is to prove that:

1. "Engineer" was not derived from *engine*,
2. We've always had a "position among professionals,"
3. Possession of a code of ethics is not one of the essential marks of a profession, and
4. What we need is integrity and a direction.

The English, German, French and Spanish dictionaries unanimously agree that the word engineer came from the French word *ingenieur*. What to the French is machine, to us is engine. "An artisan who constructs (an engine) or operates it is a 'machinist'." The extension of the use of the word engineer began in England where a man who held a watch in the engine room and the stokehole of a steamship was called an engineer.

Webster's International Dictionary is responsible for the statement that engineer "probably was (derived) from the word engine." This is the only recognized reference that suggests such origin of the word. Obviously, the logic is as bad as to assume that privateer was derived from *private*, or Alabama from *al* and *abama*. That the person responsible for the insertion should be called a philologist is to use the term loosely. All that was required was to refer to the dictionary of the French Academy of the Language.

THE fact that the name engineer has been loosely used should not upset us, however. It would be greatly desirable that the title of engineer be reserved exclusively to men who have met uniform academic requirements. Unfortunately, exclusiveness and esteem actually encourage promiscuity in the use of titles.

The promiscuity in the use of titles is not unique to any one profession. All other so-called "learned professions," suffer from the same grievance. Not all men called lawyers, doctors, or reverends meet the same ambitious requirements of the "cream of those professions." Therefore, the only apparent difference between those professionists and us is that the loose use of their identification has not outwardly developed in them an inferiority complex. However, this is not to say that the latter is not there. A little scrutiny into their feelings will disclose the same susceptibility to insecurity and dissatisfaction among many of their members.

Other flagrant cases of promiscuity are illustrated by the calling of every other male occupant in a New York hotel

STATE PRESIDENTS HOLD ANNUAL MEET IN WASHINGTON

L. L. Dresser, NSPE President-elect; Alan G. Stanford, Past President, NSPE; and S. L. Stolte, President, NSPE, listen to speaker from floor.

THE Presidents of NSPE's State Societies convened on March 2 and 3 in Washington, D. C. for the Annual State Presidents' Conference.

The theme of the conference was National Defense, and particular attention was paid to the current manpower problem, with emphasis on the proper utilization of technical personnel. In order to understand the entire emergency more thoroughly, the Presidents spent the first day of the confab at the Pentagon, discussing matters relative to the defense situation with high officials.

Among those who gave the engineering leaders a complete report on defense matters were Brigadier General A. Robert Ginsburgh, representing General Marshall's office. General Ginsburgh welcomed the group and addressed them on the current military situation in Korea. This was followed by the remarks of Mr. J. Thomas Schneider, Chairman, Personnel Policy Board, Office of the Secretary of Defense. Mr. Schneider, along with Dr. Eric A. Walker, Executive Secretary, Research and Development Board, Office of the Secretary of Defense, told the engineers how vitally important the engineering profession was to the success of the defense program. After outlining needs both from a personnel and technological standpoint, they urged all of the State Presidents to solicit the strong support of their State Societies.

Turning to the Armed Services and their problems insofar as they concern the engineering profession, officers from the Army, Navy and Air Force pointed out the added responsibility placed upon their engineer units through the Korean conflict. Brigadier General George J. Nold, Assistant Chief of Engineers for Military Construction, and Captain A. V. Hunter, United States Navy, Deputy Chief, Bureau of Yards and Docks, and Brigadier General Colby M. Myers, USAF, Deputy Director of Installations, pointed to the expanding requirements of their organizations.

After leaving the Pentagon the Chief Executives of the State Societies returned to their hotel to be the guests of the D. C. Society of Professional Engineers at a buffet dinner. Following the dinner, the first business session of the Conference was convened.

At this session and those that followed all day Saturday, the group covered a full agenda of fourteen leading items. These included such important subjects as plans for unity in the engineering profession, chapter activities, interprofessional relations, the public relations program now in operation, legislative items, national civil defense, programs for young engineers and E. I. T.s, education, membership, ethical practices, registration activities, annual NSPE Award, publications, and various administrative items.

At the Saturday luncheon, Mr. H. H. Armsby, of the U. S. Office of Education, spoke to the group. Mr. Armsby, who is also a vice-president of the American Society of Engineering Education, told the visiting engineers that "we are facing the emergency defense program with but half of the engineers we need or can expect to get."

Presidents at the meeting. Left to right: George J. Nicastro, Nat'l. Vice Pres., New York; Earl N. Holm, Nat'l. Vice Pres., California; W. D. Williams, Arizona; K. D. Harrington, California; J. G. Phelan, Connecticut; L. Adams, Colorado; J. L. Bahr, Delaware; H. W. Clark, D. C.

Left to right: E. A. Anderson, Florida; J. H. Lopez, Georgia; E. L. Mathes, Idaho; V. Gunlock, Illinois; L. E. Easley, Indiana; C. V. Waddington, Kansas; A. M. Gompf, Maryland; D. Wilson, Missouri; and A. Hernandez, Puerto Rico. Signor Hernandez addressed the group.

"I will be frank and admit that we still do not have all the details of the technical manpower shortage issue. We know we need engineers and need them vitally, but just where they will be needed and just how they will be needed, we cannot say. That is why I welcome this opportunity to talk to you engineering leaders today and to solicit your aid. I hope you will carry what facts you may gain here back to your individual groups so they may better understand the problems we as a Nation face," Mr. Armsby said.

Besides dealing with subjects on the agenda, the State Presidents heard special reports by Mr. Joe Williamson, Jr., P. E., Chairman of the Chapter Activities Committee; Colonel Chester Lichtenberg, P. E., Chairman of the Young Engineers Committee; Mr. James F. Fairman, P. E., Chairman of the Committee on Inter-Society Relations; Mr. William F. Ryan, P. E., Chairman of the Membership Committee; and Mr. C. G. Roush, P. E., Chairman of the Public Relations Committee.

Executive Committee Meets

On March 1st, the day preceding the general conference, the Executive Committee met in Washington to finally approve the program for the State Presidents' Meeting. NSPE President Sidney L. Stolte presided over the gathering that included all of the Society's officers.

All committee chairmen had previously been requested by President Stolte to submit reports of the activities of their committee to date, as well as any recommendations which needed to be acted upon before the June Board meeting. As a result, many committee chairmen presented written reports containing recommendations for consideration of the Executive Committee. The most extensive of these reports were those received from the Young Engineers Committee, Legislative Committee, and the Chapter Activities Committee.

The Young Engineers Committee reviewed a number of activities of the Society as they affected young engineers. On the Young Engineers Committee are several representatives of State Societies who have been active in developing programs of interest to the younger men of the profession. These activities have been summarized by the Young Engineers Committee and were contained in the Committee's report. One was a review of procedures utilized to interest young engineers in membership in the Society. This review was turned over to the Membership Committee.

G. W. Clark, Ohio, and R. A. Blackburn, Pennsylvania, admire ties won in membership contest. Ohio gave Quaker State tie because the latter got more members; Pennsylvania gave Ohio tie because they didn't get the 500 they boasted they would.

The second enclosure contained a summary of programs which had been successful in gaining participation of young engineers. These activities had been summarized by the Young Engineers Committee and were passed on to the Chapter Activities Committee.

The Legislative Committee called the attention of the Society to various pieces of legislation in which the engineering profession has interest. Among these were the Scientific Manpower Problem, the U. S. Air Force Organization Act of 1951, Amendments to the Walsh-Healy and Davis-Bacon Acts, various legislation implementing recommendations to the Hoover Commission, and several other matters which have been extensively reported in the Legislative Bulletins.

Late last year the Chapter Activities Committee had directed a questionnaire to the Chapter presidents and secretaries asking their opinion of the Chapter Handbook and suggestions for its improvement. The questionnaires have been tabulated. Mr. Williamson's report based upon the

(*Continued on page* 24)

L. T. Klauder, New Jersey; V. J. Van Lint, New Mexico; R. A. Sovik, New York; J. A. Oakey, North Dakota; E. Larsen, Ohio; G. W. Clark, Ohio; F. G. Fellows, Oklahoma, and R. A. Blackburn, Pennsylvania. President Sovik told the officials of N. Y.'s civil defense program.

R. P. Farrell, Tennessee; M. Nichols, Texas; J. A. Rives, Texas; S. M. Batori, Washington; L. C. Gates, West Virginia; R. C. Clark, Wisconsin, and J. D. Coleman, Nat'l. Vice Pres., Ohio. Sessions were held Friday night and throughout Saturday to discuss mutual problems.

TIME TO STOP FOOLING

In the magazine, *Life*, (Sept. 18, 1950), a photograph appeared of a young Marine in Korea, with tears streaming down his cheeks, crying "No more ammo." Translate the word "ammo" into the more generalized term, "munitions," and this photograph deserves the earnest consideration of everyone concerned with directing the policies on national defense, from the President of the United States down. It is understandable that the problem of supplies is one of delivery as well as procurement, and that therefore there are two parts to the question, but concentration on delivery and neglect of procurement is a fool's policy.

The argument for supplies is as important as the argument for "bodies." We dislike repeating cliches but it must be impressed over and over upon the people of the United States that our only chance of winning against the forces opposed to us lies in competition with brains rather than with bodies. If we depend entirely upon the latter, we are lost, and will become the greatest slave state in history. The most efficient use of our manpower is the greatest problem now facing these United States and recent events have shown that it is time to stop fooling.

The general theory that every physically capable man between 26 and 19 must be in the Army is a little-boy idea, devoid of sufficient reflection and empty of judgment.

The report of the Six Advisory Committees to the Selective Service System presented to General Hershey in Washington a few weeks ago indicated a reasonable method of attaining the objectives which we seek. The fact that we are told that this state of mobilization may last for many years, even if no war breaks out, indicates the justice of the Committees' recommendations that there should be a steady flow through the universities of selected students, under conditions of proper safeguards with regard to standards and accomplishments. Industry is being asked to expand and to expand rapidly. Such expansion requires management personnel which must be drawn from older, more experienced men. Their places, in turn, must be taken by younger men, and theirs, in turn, by embryo graduates. Immediately this poses many problems for management but none of them is as bad as having no replacements which will force cessation of production. Who wants to take the responsibility for the sake of having a few more infantrymen, that our G. I.'s have no more ammo?

Equally important is the recommendation of the Committees that these graduates be given four months to get settled in an important war industry. It is futile to train them and induct them on the day of their graduation. This is so obvious that it does not seem to be seen, and thousands of technical seniors are in this position in this country today.

We must be sure to look at both sides of this question. The Armed Forces, too, have a job to do, and it is the teamwork between them and industry which will win any war that we may have. It would seem fair, therefore, that when there is a question of the induction or calling into Service of engineers and other technically trained men the problem should be looked at from a more judicial standpoint than has been the case heretofore. At present the burden of proof is entirely on the industrial side. No mention is made of what is going to happen to the man when he gets into the Armed Forces. It would seem, therefore, proper that the Armed Forces should present their reasons for induction at the same time that industry presents its request for deferment, and that the judgment should be based on where the man can best serve his country. There are many uses for technical men in the Armed Services and they may well be more important than the work which the individual is carrying on in industry, and such cases should be properly weighed and properly adjudicated. By some such process as this, the people of the United States can be assured that their fringe of technical superiority is not being frittered away and that if the Korean G.I. has no more ammo, it is from lack of resources and not stupidity in their utilization.

F. J. CURTIS,
Chemical Engineering Progress
February, 1951

WOMEN IN ENGINEERING

There is more and more discussion about the need and opportunity for women in engineering and this subject is increasingly in the news.

Dean John R. Dunning of the school of engineering, Columbia University, says that Columbia is giving strong encouragement to women to enter upon an engineering career. "The present situation," says Dr. Dunning, "provides for women an unusual opportunity in engineering work, and they can assist vitally in the national defense program."

Raymond D. Meade, placement director at Illinois Institute of Technology, says that industry's ever-increasing demand for engineering college graduates has forced employers to seek women engineers for the first time—because of a shortage of this type of production personnel.

The Cooperative Education Division of the American Society for Engineering Education has recommended that women be trained on a technical, sub-professional level in engineering trades to fill gaps left by men entering military service.

The division meeting at the University of Florida in Gainesville, recommended a two-year course in the fields of drafting, lab techniques, computing and tabulating of technical engineering data and other related subjects. No academic degrees would be offered to the women trainees but diplomas would be awarded.

Norman H. Getchius, manager of the Jersey City office of the N. J. State Employment Service, says that in order to meet the future demand for trained engineers, it appears advisable that an increasing number of young women take engineering courses. Employers who heretofore have refused to hire female engineers are today actively seeking them and even offering them a bonus to accept employment.

Engineering News-Record
February 22, 1951

LEADERS ARE MADE— ENGINEERING STYLE

Students at the Newark (New Jersey) College of Engineering have asked many questions in the past about proper committee function, parliamentary procedure, organizational public relations, official duties, et cetera. Because of the need for help in such matters the Nu Chi Epsilon Fraternity, the honor leadership organization, undertook the responsibility to sponsor a leadership conference for the students, the faculty, and the administration.

The conference was conducted in two parts: the panel discussion and the workshops. The panel consisted of four speakers: The President Emeritus of the College spoke on "The Role of the Leader"; the President of the College, "The Use of Committees"; The Director of Public Relations, "The Value of Public Relations"; and the Secretary to the College Faculty, "Techniques of Writing Secretarial Minutes." Each speaker had a student associate. After these speeches the panel was thrown open to enable members of the audience to learn answers from authorities.

After a fifteen-minute intermission which allowed for a general socialization of the panel and the audience, the workshops were formed, based on the individual need of the participant. For example, in the workshop for parliamentarians and vice-president, pamphlets on "Parliamentary Law" were distributed and discussed. Each workshop had a student and a faculty chairman so that an impartial democratic attitude permeated the meeting. Some of the pertinent findings that were recorded are as follows:

Workshop for Presidents

The desirable qualifications of a good president are poise and control of temper; respect for time, its value and use; ability to take and give constructive criticism; broadmindedness; wisdom to seek aid from competent sources; and good judgment, or the ability to make good "snap decisions," as well as those based on logical reasoning.

Workshop for Parliamentarians and Vice-President

The basic aim of parliamentary procedure is to get the cooperation of the governed. All organizations specify in their by-laws which "rules of order" are to be used by the organization. Parliamentarians should become thoroughly familiar with Roberts' "Rules of Order."

Workshop for Secretaries

Secretaries are not *per se* leaders, though the job may be a stepping stone. His minutes are a reflection of the Chair's conduct of a meeting. The importance of his functions depends on the size of the organization, the scope of the activities and the democracy of the meeting.

Workshop for Treasurers

An efficient treasurer will set a specified time for collecting dues and completing records. He should always issue a receipt for money paid in, no matter how much. If the organization is large enough, the treasurers should be bonded. Minimum bonding premium is $10.00 per year for small organizations.

H. A. ESTRIN, Assistant Professor of English, Newark College of Engineering
Journal of Engineering Education, January, 1951.

TECHNOLOGICAL CHANGE AND SOCIAL POLICY

Social policy may be defined as a self-conscious search for a more adequate adjustment to our way of life. It is, in other words, a search for new physical or social inventions which, it is hoped, will make living more pleasant and comfortable. In any changing culture it is an inevitable and ceaseless search, but in a changing technological culture, such as that of the United States, it is an imperative for survival.

First of all, the need for social policy arises from the functional interdependence of technological inventions. Students of modern technology are deeply impressed by the manner in which inventions in one area of modern life are linked with inventions in other areas. Indeed, this technological symbiosis, or mutual dependence, lies at the very root of the general concern with the problem of technology and social policy. Technology itself is not merely a mode of social adjustment; even more significantly, it is a major cause of new social adjustments.

In a review of the resistance to technological innovations in several fields — transportation, communication, power, metals, textiles, agricultural machinery, building—sociologist Bernard J. Stern reported to the National Resources Committee the following finding: "From the results of this study it is apparent that the psychological factors of habit, fear, desire for personality equilibrium and status, and the tendency of groups to coerce their members to conformity, are latent predisposing factors toward resistance to change."

In the next place, social policy must reckon with the need for maintaining free but well-financed programs of basic research (or so-called "pure science"). This is imperative since change, in a technological culture, is absolutely dependent on the free elaboration of scientific discovery and its subsequent linkage with technical application.

Finally, it is wise to remember that social policy, with respect to proposed or anticipated innovations and their consequences, is necessarily an unfinished — even unfinishable — business. A culture which survives by ceaseless change can hardly find refuge in static formulas of control. Social policy in the field of technological change must, moreover, not only be dynamic but integral as well. This fact forms one of the conclusions of a recent study of this problem sponsored by the Social Science Research Council. "The total examination of the field of technological change will require a team approach. Only by combining the work of economists, sociologists, psychologists, political scientists, and other specialists can the total cost and total effect of any given change be measured. . . . After the efforts of these specialists are combined, we will have the relevant data for the kinds of decisions that are attempted in modern social organizations.

PAUL MEADOWS
The Technology Review, official publication of the Massachusetts Institute of Technology, January, 1951.

OTHER SUGGESTED READING

"Helping the Graduate Choose Employment," D. W. McLenegan, *The Journal of Engineering Education*, January, 1951. P. 326.

"A Young Engineer Looks at His 'Profession'," J. B. Weaver, *Chemical Engineering Progress*, February, 1951. P. 17.

"The Engineer and Security," Luis de Florez, *The Technology Review*, December, 1950. P. 91.

"Engineering Education and the Employer," a panel discussion, *The Engineering Journal*, November, 1950. P. 956.

Radio, TV, Theatre and Press Used in Engineers' Week Observance

FROM the various reports received at National Headquarters recently, Engineers' Week was an outstanding success throughout the country. As we go to press, accounts of various activities are still coming in, but here's the picture so far.

Engineers' Week proclamations were issued by the following Governors: Howard Pyle, Arizona; Fuller Warren, Florida; Forrest Smith, Missouri; Edwin Meckem, New Mexico; Thomas E. Dewey, New York; Frank J. Lausche, Ohio; Johnston Murray, Oklahoma; Dennis J. Roberts, Rhode Island, and Okey L. Patterson, West Virginia.

Some of the cities in which proclamations were issued by the Mayor include: Chicago; Kansas City; Youngstown, Marion and Springfield, Ohio; Jefferson City, Missouri and Knoxville, Tennessee.

Radio programs played a large part in the Engineers' Week programs of many Societies and Chapters. "The Dream Builder," a script prepared especially for Engineers' Week was presented by many Chapters, including: Stanislaus Chapter, California Society; Pittsburgh and Lehigh Chapters, Pennsylvania Society; and San Jacinto Chapter, Texas Society. Many other radio shows dealing with the work of the professional engineer or his contribution to community and national life were presented around the nation. Spot announcements were also furnished to many stations by various Chapters. Television was utilized by at least one Chapter when Robert A. Sovik, President, New York State Society, was featured on a question and answer show over a Syracuse TV station.

News releases of all types figured prominently in the Week's schedule. Some Societies such as Ohio, Pennsylvania and New York prepared special stories and released them to their Chapters for distribution. Stories and articles had a wide range of news value, varying from an announcement of the Week to local Chapter meetings.

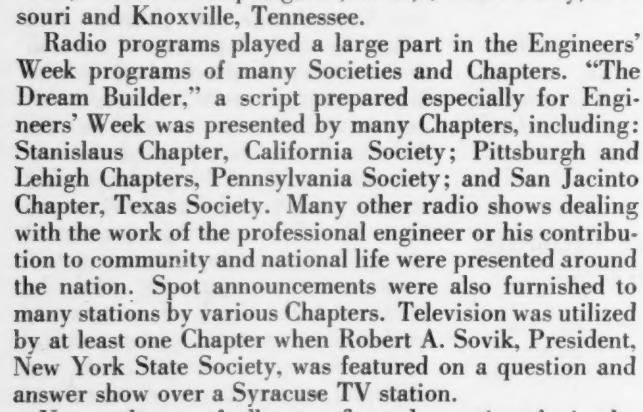
Window displays rangd from exhibition of Governors' proclamations to industrial presentations. Particularly active in this field were the Rhode Island, Arizona, Kansas, Missouri, New York and Ohio Societies.

Special meetings were held by many Chapters in observance of the Week. In addition to regular meetings for Chapter members only, many groups planned meetings or conferences for special groups or honored individuals. The San Jacinto Chapter, Texas Society, and the Jefferson City Chapter, Missouri Society, held meetings to honor outstanding engineers of their areas, while the Cleveland Chapter, Ohio Society, held a special high school engineering conference which featured addresses by various members on many phases of the profession, followed by conferences with interested individuals. In addition, the Stanislaus Chapter, California's Society, provided speakers for the Modesto Junior College Engineering Club and held a question and answer period after the speeches. The Tulsa Chapter, Oklahoma Society, held a "kick-off" luncheon early in the Week with the Engineer's Club of Tulsa as their special guests.

Other special activities throughout the Week included an Essay Contest by the Galveston Chapter, Texas Society, the presentation of reference books to the Decatur Library by the Central Chapter, Illinois Society, and newspaper ads which were run by companies throughout Arizona to honor the professional engineer.

Society president Sidney L. Stolte offered congratulations to the many Chapters and Societies who worked to make Engineers' Week a big success and contributing to the public recognition of the professional engineer.

Rhode Island . . .



Shown above is one of the window displays which was exhibited by the Rhode Island Society during Engineers' Week. The first telephone was donated by Brown University and the modern telephone was donated by the New England Telephone and Telegraph Company.

From Coast to Coast . . .

Texas. As part of its celebration of Engineers' Week, the San Jacinto Chapter of the Texas Society held its First Annual Award Dinner on February 20 at the Shamrock Hotel in Houston.

Mr. Warren S. Bellows, Houston contractor and engineer, was honored as the outstanding engineer of the area with a presentation of a scroll by Mason G. Lockwood, P.E., immediate past president of the Texas Society. In making the presentation Mr. Lockwood said that Bellows is one of Houston's most genuinely modest men; he considers himself inadequate for the public responsibilities he undertakes, despite his unbroken record of successes, and he sincerely tries to avoid personal recognition.

Chapter President Howard T. Tellepsen, P.E., served as master of ceremonies, and Dean Cherry L. Emerson, P.E., vice-president, Georgia Institute of Technology, and vice-president of NSPE, discussed the aims of the engineering profession and told of plan for increasing its recognition.

Missouri. In addition to the Engineers' Week activities of the Missouri Society which were listed in the March issue of the AMERICAN ENGINEER, the Honorable Forrest Smith, Governor of Missouri, issued an Engineers' Week Proclamation.

In proclaiming the Week Governor Smith said, "so

much is owed by all of us who make up this great profession . . . it is fitting that we recognize and honor these benefactors of mankind."

The Jefferson City Chapter, MSPE, presented Mr. Carl W. Brown, P. E., Chief Engineer for the Missouri State Highway Department, with a professional achievement award at its noon luncheon on February 20 in Jefferson City. Mr. Brown is a registered professional engineer, a member of the Missouri and National Societies and has actively supported the organization of the Missouri Society.

Ohio. Many varied activities were featured by the Chapters of the Ohio Society during its observance of national Engineers' Week.

The Cleveland Chapter, in cooperation with the Cleveland Technical Societies Council, held a "George Washington's Birthday Engineering Conference for High School Students" on February 22 as a special feature of the Week. Held at the Case Institute of Technology, more than 200 heard Dr. Harry Osborn, Jr., Technical Director of the Ohio Crankshaft Company, speak on "A Career in Engineering" and to confer with some of the leading engineers in Cleveland. In his address, Dr. Osborn stressed the need for engineers to further boost the standard of living through improved production methods.

A movie showing behind-the-scenes activity in a television studio was shown through the courtesy of the Austin Company and the meeting ended with individual conferences with industrial and educational representatives in Cleveland.

As the high point of their week-long observance, the Marion Chapter opened a photographic display in the Hotel Harding on February 20. Industrial photographs, citing outstanding examples of engineering skill in design and development were displayed by 28 of the leading Marion Industrial concerns through February 23. Members of the Marion Chapter were present at noon and in the evenings to answer questions of visitors and to give information regarding the engineering profession. Mayor Harold F. Robinson of Marion issued a proclamation at the request of the Chapter, and the group presented the Marion Theater Guild in a fifteen minute radio program over station WMRN on Washington's Birthday.

The Honorable Charles E. Henderson, Mayor of Youngstown, Ohio, issued a proclamation for that city at the request of the Mahoning Valley Chapter and Mayor Louis W. Lohrey of Dayton issued an Engineers' Week proclamation on behalf of the Dayton Chapter.

Tulsa. The observance of Engineers' Week by the Tulsa Chapter, OSPE, was a full program of radio shows, luncheons, television shows and speeches.

On Monday, February 19, a kickoff luncheon was held at the Chamber of Commerce dining room in Tulsa as a joint meeting of the Engineer's Club of Tulsa and the Tulsa Chapter, Oklahoma Society. The speaker for the occasion was Mr. G. W. McCullough, P.E., Executive Vice President and General Manager, Phillips Chemical Company, Bartlesville, Oklahoma. Mr. McCullough's topic was "The Engineer's Road Ahead," and his talk covered the varied problems of the engineer today and their opportunity to contribute their technical skill and analytical judgment to the military strength and needed overall stability of the Nation.

Later that evening station KOME presented a tape recording with Governor Johnston Murray, who had earlier proclaimed Engineers' Week for Oklahoma, Brigadier General Roy W. Kenney and Fred Fellows, President, Oklahoma Society.

TOP PICTURE: Left to right, William Limpus, P. E., Governor Johnston Murray of Oklahoma and Fred G. Fellows, P. E., President of the Oklahoma Society, are shown as they prepared civil defense programs to be broadcast over state networks throughout Engineers' Week. MIDDLE PICTURE: Mr. Jules P. Channing, P. E., Director, Miami Chapter, Florida Society, (fourth from left) is shown presenting the Proclamation made by Governor Fuller Warren to Florida President E. A. Anderson (third from left). Others included in the picture are, left to right, seated: John E. Kiker, Jr., P. E.; John F. Reynolds, P. E., FSPE National Director; E. A. Anderson, P. E.; Jules P. Channing, P. E.; Homer B. Scott. Standing: James B. Wadsworth, P. E.; John L. McCollough, P. E., Director, Jacksonville Chapter; Robert M. Marshall, P. E.; Trice M. Bell, P. E., Director, Tampa Chapter, and Joe Williamson, Jr., P. E., Director, Daytona Beach Chapter. BOTTOM PICTURE: Members of the Washington Society are shown as they discussed the Professional Engineer with Governor Arthur B. Langlie, who later issued an official news release on the subject. Left to right: W. W. Bergerson, P. E., Chairman, Olympia Section; State Senator William D. Shannon, P. E.; Stephen S. Batori, P. E., President, WSPE; Charles V. Smith, P. E., Chairman, Seattle Public Relations Committee and the Honorable Arthur B. Langlie, Governor of Washington.

On Tuesday, February 20, Mr. Robert Petrasek, P.E., was interviewed over radio station KAKG by Louis Meyer on "What is a Professional Engineer?" Simultaneously, Mayor Stoner and L. L. Dresser, P.E., introduced a program by Dean Carson of the University of Oklahoma on "The Engineer and Civil Defense" over television station KOTV. On station KOME Mr. R. K. Lane, President of the Public Service Company of Oklahoma, spoke on "Engineers."

On February 22, City Engineer W. R. Wooten, P.E., expressed his views on Civilian Defense as a citizen of Tulsa over radio station KTUL.

City Planning Engineer Irving Hand concluded the week of broadcasting when he discussed "City Planning and Civil Defense" over radio station KTUL on February 23.

Rhode Island. The Rhode Island Society participated in the national observance of Engineers' Week by window displays showing engineering progress since the time of George Washington, sponsored radio programs and a proclamation from the Honorable Dennis J. Roberts, Governor of Rhode Island.

Window displays in Providence and throughout the state included exhibits of a model of a jet plane factory which was donated by the U. S. Navy; old and new telephones from Brown University and the New England Telephone and Telegraph Company; a model of the Corliss engine, Stanley power engine, old and new surveying instruments from Brown University; a model of the Olneyville Expressway; a model from Rhode Island State College; models of improvements in automobile engines from Gazda Engine Co., and tools from the Brown and Sharpe Manufacturing Company.

New York. The Central New York Chapter of the NYSSPE featured a display of models and products at several stores in Syracuse throughout Engineers' Week, as part of their celebration of the event.

Among the companies whose products were displayed were: Allied Chemical & Dye Corporation; Bristol Laboratories; L. C. Smith Typewriter Company and the Easy Washing Machine Corporation.

TENNESSEE . . .

Pictured above is Miss Betty Cassell, student at the Central High School of Knoxville, Tennessee, who holds Mayor James W. Elmore's proclamation, reproductions of which were displayed in Knoxville store windows throughout the Week.

OHIO . . .

Pictured above is the Honorable Charles P. Henderson, Mayor, Youngstown, Ohio, as he signed the Engineers' Week Proclamation for that city. A. L. Thurman, P. E., President of the Mahoning Valley Chapter, Ohio Society is looking on.

Chicago. The Honorable Martin H. Kennelly, Mayor of Chicago, in his Engineers' Week proclamation of February 13 on behalf of the Chicago Chapter, ISPE, said, "... the city of Chicago which raised its buildings and highways from the prairie swamps, filled in land for a great park and highway border, and changed the course and flow of a river, has particular reason to know how much the engineering profession has contributed to the growth and development of our city . . ."

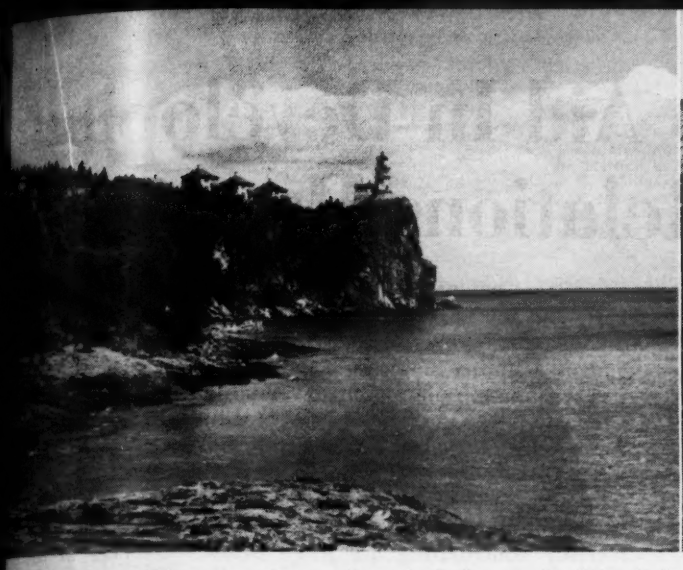
The proclamation was concluded with a salute to the Chicago Chapter and a listing of the professional engineers' contributions to Chicago's economic, industrial and social well-being.

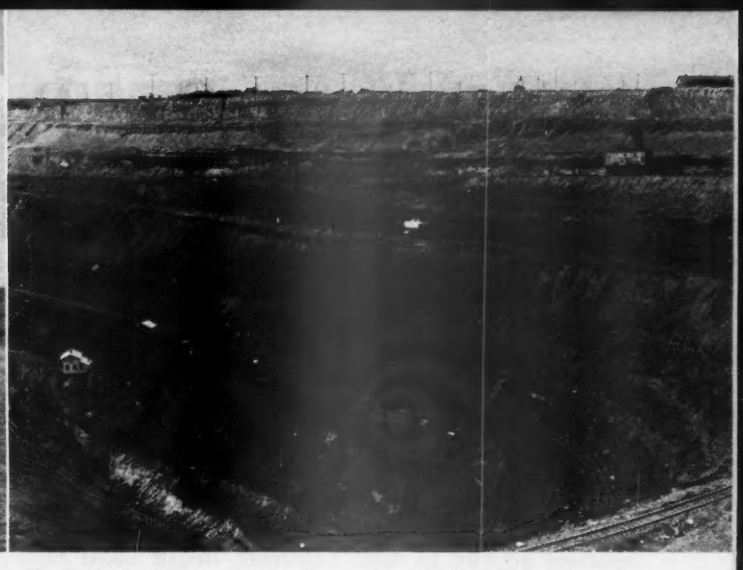
Pennsylvania. Among the Engineers' Week activities of the Lehigh Valley Chapter of the Pennsylvania Society were a presentation of "The Dream Builder" over radio station WHOL in Allentown and another fifteen minute program dedicated to the Professional Engineers over station WAEB in Allentown. In addition, short spot announcements pertaining to the Week were broadcast by most of the stations throughout the Lehigh Valley during the observance.

California. The Stanislaus Chapter of the California Society presented the radio script "The Dream Builder" over Station KTRB in Modesto on February 22 as part of its celebration of Engineers' Week.

Other activities for the Week included an address on "Professionalism in Engineering" by Professor Felix A. Wallace, Chairman of the Engineering Department, College of Pacific, to the Modesto Engineers Club at its meeting on February 20. Mr. Lawrence Adams, P.E., presided.

On February 21, a group of the Stanislaus Chapter met with the Modesto Junior College Engineer's Club at the first Spring meeting at the college. Several members of the Chapter spoke on various types of engineering and Mr. Kenneth Biesemeier, P.E., spoke on "Preparation for Professionalism in Engineering."





Scenes of Minnesota shown above include, on the left: Split Rock Light House, located on the North Shore of Lake Superior; on the right: iron mining at Hibbing, Minnesota.

Minnesota Gets Set For Annual Meet

Minnesota, pine-scented vacation playland of the nation, is getting ready to welcome members of the NSPE and their families at the 16th annual convention of the National Society in Minneapolis, June 14-16.

Delegates and visitors not only will have a chance to see beautiful Lake Minnetonka, one of Minnesota's famed 10,000, during the convention days, but plans also are being made for a post-convention trip along the glorious North Shore of Lake Superior and on to the Mesabi Iron Range and the spectacular open pit mines near Hibbing.

Interest among delegates will determine whether such a trip will be scheduled, according to Convention Co-Chairmen Robert D. Longyear and Paul R. Speer. (Those interested are asked to clip out the coupon on this page and mail it to L. G. Barnes, Twin City Rapid Transit Company, 1 South 11th Street, Minneapolis, Minn.)

Entertainment Chairman Barnes has tentatively scheduled the trip to start Sunday, June 17 and to include the drive along the North Shore from Duluth, generally conceded to be one of America's most beautiful scenic regions. The rugged shores of the great lake, the virgin pine forests, historic spots such as Split Rock lighthouse, Gooseberry Falls and others, will be attractive to visitors from all parts of the country. After a night at Cascade Lodge on the North Shore, the visitors will go on to Hibbing and the world's largest open pit mine. Called "the most stupendous excavation ever dug by man," the mine is noted among other facts because more earth was taken from the giant chasm than from the Panama Canal. It is said that the idea of using steam shovels for scooping out the great waterway came as a result of watching their operations in the open pits of the Mesabi Range.

Bus fare to the North Shore and Hibbing and return will be $10 for the round trip, with dinner, lodgings and breakfast at Cascade Lodge for $7 additional.

Minnesota committees have been hard at work all winter planning for the June meeting. One of the highlights of entertainment planned for Friday, June 15, is a tour of Lake Minnetonka, show place of the northwest, ending with cocktails and dinner at the Minneapolis Golf Club. Saturday's entertainment for visiting ladies will include a tour and tea at the home of Chairman Longyear. After the annual meeting Saturday, there will be a banquet and dance, with Minnesota's governor Luther W. Youngdahl and Mrs. Youngdahl as guests of honor.

Plan Now To Attend The June Meeting . . .

Clip Here

I would be interested in the proposed post-convention trip June 17 to the North Shore of Lake Superior and the Hibbing iron mines. Keep me informed on progress of plans. I understand that this expression of interest is not a formal commitment and does not obligate me to make the trip.

.....
(Name)

.....
(Address)

Fill in and mail to L. G. Barnes, Twin City Rapid Transit Co., 1 S. 11th St., Minneapolis, Minn. Entertainment Chairman.

Pendray & Co. To Aid In Developing NSPE'S Public Relations Program

Mr. C. G. Roush, Chairman of the Public Relations Committee, has announced that the Executive Committee of the National Society has approved the appointment of the public relations firm of Pendray & Company, industrial public relations consultants of New York, to aid in the execution of NSPE's new public relations program. The firm will commence work immediately to carry out the four-step public relations program for which the Society has raised funds through a solicitation campaign.

In a memo outlining the progress of the entire public relations activity to date, Chairman Roush asked State Presidents to begin immediately to obtain name listings of individuals who would be utilized during the coming program.

"In some cases the States will handle direct mailings to these contacts," Chairman Roush explained. "In other cases the Chapters may want to take these mailings and carry out the activity at the local level. Others with small memberships may not have a central office and may suggest that any mailings to the compiled list be made by the Washington office. But the important thing now is to start compiling the lists so that we will have the necessary contacts when material is ready to go out."

It has also been announced by the Washington office that nearly 3,500 NSPE members have now contributed to the public relations fund. Additional names of those recently contributing are listed below. Members of the Public Relations Committee urged all State and Chapter officials to impress upon their members the desirability of contributing before the campaign closes. The coupon on this page may be used to accompany funds sent to Headquarters.

Additional Contributors to the P. R. Fund

ARIZONA
Victor M. Arciniega
H. C. Bigglestone
Charles T. Cavan
C. C. Huskison
Louis G. Nieman
T. W. Saul

ARKANSAS
L. R. Parmelee

CALIFORNIA
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T. N. Lindquist
Frank Linehan, III
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Stewart M. McGaw
Arthur E. Meyer
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G. V. Nolde
Prof. Engrs. of Valuation Division, State Board of Engineering
Fred K. R. Richter
Siegfried Ruppright
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DISTRICT OF COLUMBIA
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John Hugh Grayson
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N. R. Henry
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Edgar D. Johnson
Frank J. Johnson
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James C. Prather
S. G. Stribling

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Allen S. Janssen
Harold L. Lackey
Earl C. Reynolds, Jr.

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Raymond G. Brichler
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Harlan H. Hugg
A. M. Hunter
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J. B. Moran
James H. Morrow
Russell J. Newell
E. A. Preston
Burton A. Scheidt
Walter A. Shaw
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W. K. Waltz
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L. T. Apple
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Emmet G. Fowler
William M. Hunt
D. K. Hutchcraft
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C. W. Moellering
J. B. Murphy
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C. H. Thuman
Lester A. Trier
H. Tom Tuinman
Walter Woodward
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KANSAS
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V. L. Pierce
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Roland N. Short
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MARYLAND
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William H. Pierce

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N. C. Peterson
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Frederick C. Teske, Jr.
Walter H. Wheeler

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NEVADA
A. E. Anderson
Harold W. Bishop
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Edward J. Adamec
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G. Albert Platt
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C. E. Rodenburg
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Saul Shaw
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Jacob Simon
Julius S'omowitz
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D. Richard Tarallo
Anthony J. Vasselli
George B. Waddill
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NEW MEXICO
Robert O. Burke
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NEW YORK
Glen D. Bagley
Hiram W. Barnes
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Charles Walter Dohn
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Edwards & Prime
James F. Fairman
Julius Fitz

John J. Fitzgerald
Gustaue Freeman
Harold H. Funk
Roy M. Giroux
Louis G. Gitzendanner
Paul R. Goppoldt
Ned P. Greenleay
John Haas
Sherwood Hacker
Jos. H. Heimann
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David Jacobson
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Harry Spitzer
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M. T. Ultaig

OHIO
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David S. Ailes
Julian H. Allen
Robert E. Allen
Nicholas G. Ankudinoff
Wayne E. Ault
A. B. Backherms
Victor L. Bajc
Harry R. Burns
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R. S. Fisher
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George V. Fleck
R. A. Freese
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James M. Gray
Leonard H. Hadde
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Daniel G. Hatmaker
Gerald W. Hindel
Alfred I. Holden
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James T. Horgam
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T. Leslie Lees
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Chester V. Long
Alex Lowinger
William Heid MacConnell
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BOOK LOOKS

Title: Communicating Ideas to the Public.
Author: Stephen E. Fitzgerald.
Published by: Funk & Wagnalls Co. Price: $3.50.

Here is a book for every executive who has ever said, "If we could only make them understand . . ." In "Communicating Ideas to the Public," the author attempts, rather successfully, to define the problem of public relations from a new angle—human communications.

The first part of the book touches lightly on the pressures that brought about the need for business to tell its side of the story, the tools available for the job, the organization necessary, and finally, a blueprint for results.

The author then goes on to explain the techniques of communication, from word of mouth to television. One of the best chapters in this section is devoted to "readability," a factor too often forgotten when the printed word is used as a medium of communication. Happily, the author practices what he preaches and doesn't confuse the reader with the mumbo jumbo of "trade terms" so dear to the hearts of many public relations counsellors. As a result, the book achieves its objective, as stated in its sub-title—A Practical Application of Public Relations Techniques to Everyday Problems in Human Communications.

Title: The Proper Study of Mankind.
Author: Stuart Chase.
Published by: Harper & Brothers, New York. Price $3.00.

Stuart Chase, author of "The Proper Study of Mankind," has turned out a particularly valuable book after voluminous research and consultation with anthropologists, sociologists, psychologists, economists, political scientists and other social scientists, in an effort to determine if the scientific method can be applied to human relations.

Chase begins by explaining the scientific method and then shows how scientific progress has been made not only in the field of nuclear fission but of social science. In support of the scientific method in the latter field, he lists population growth estimates and census-taking which has developed in the U. S. in 1940 to within less than 2/100 of 1 per cent of prediction accuracy. He points out the regularities in these developments and also shows that probability mathematics has been developed.

Next, the author tells of the extensive "screening" and testing methods employed by the Army and Navy Air Forces during the last war to determine the best pilot material. In comparing these tests to the Manhattan atomic project, he says that whereas they both employed the scientific method, there were three basic differences: 1. There was a less dependable history behind the social scientists, but, he adds, "the next man can stand on their shoulders." 2. ". . . successful prediction was not so high as in the investigation of the atom." However, this simply means a larger margin of error. This need not be discouraging in the face of medicine and its so-called natural science. 3. The names of the social science authorities are relatively unknown, due to the greater veneration of the natural scientists.

Chase then lists and explains the various branches of social science and presents some of the great unanswered questions which still demand investigation, i.e., "how can we develop a more dependable psychology?", "how large can a society grow before its members lose touch with one another, and so begin to lose essential functions—in a sense their very humanity?"

Also included in "The Proper Study of Mankind" are many other interesting chapters dealing with such topics as racial problems, the Japanese-American and his position in the last war, some laws of social change, labor and management, determining public opinion via polls, semantics et cetera. In addition, Mr. Chase presents a review of his findings in accordance with scientific method procedures.

Meeting

(*Continued from page* 15)

results, indicates that extensive requests are being received from chapters for assistance in developing programs, coordinating activity with other units of the Professional Society, and a request for additional aids for greater professional activity. The Executive Committee received the report, and the Chapter Activities was urged to secure details of outstanding chapter programs for distribution to interested Chapter and State Societies.

The Public Relations Committee Chairman presented to the Committee a report indicating that several Public Relations firms have been contacted. As a result of a review of the firms contacted, the Executive Committee authorized the retention of the public relations firm of Pendray and Associates in New York City.

The official audit of the Society's finances was received by the Executive Committee and approved. As the result of the audit, it was found that there were some funds remaining in excess of the expenses in 1950, and the Executive Committee authorized a transfer of $10,000 of these funds to the Reserve Fund of the Society.

Ladies' Auxiliaries have become increasingly active in connection with a number of Chapters, and several have requested information on how they can be of more assistance. Several specific written requests were brought to the attention of the Executive Committee, and President Stolte was authorized to appoint a special committee to review ways and means of greater cooperation with these ladies' auxiliaries.

Difficulties experienced by professional engineers in private practice in negotiating contracts with various units of the Federal Government were discussed. As a result of these discussions, a special committee was appointed to review in detail the particular problems involved.

A number of administrative details were reviewed by the Executive Committee. State Societies were urged to facilitate the transfer of memberships of EITs between State Societies, and to change the grade of an EIT to Professional Engineer Member as soon as he becomes registered without additional payment of dues during that year. Those officers of the Public Health Service in uniform were to be considered the same as other members of the armed services in uniform for the purpose of membership status. Several revisions to the budget were found to be necessary, and these were approved, as well as the approval of several Members At Large.

The 1951 Fall Board Meeting as well as the 1952 Spring Meeting locations and times were reviewed, and recommendations were made to the Board of Directors for their consideration at the Annual Meeting.

The Education Committee has given considerable study to the problem of engineering education, and as a result of their studies have presented a statement of policy. The statement was reviewed in detail by the Executive Committee, and was referred to the Board of Directors with a recommendation for its adoption.

Volunteer Counselors Selected For Young Engineers By Society Committee

Specialization in Engineering has brought with it an increasing desire by Student Engineers, Engineers-in-Training and young Professional Engineers to obtain orientation advice from well-established Professional Engineers.

A way appears to have been found to meet this need, at least in part.

A number of well-established Professional Engineer members of the National Society of Professional Engineers have agreed to receive written requests for orientation information from Student Engineers, Engineers-in-Training and young Professional Engineers and to answer these requests, to the best of their ability, by mail.

This service is not intended to be an employment service. It is intended to be a counselor service on orientation problems of young engineers.

The well-established Professional Engineers who have volunteered for this orientation information service are listed alphabetically, by states or the equivalent, in the tabulation which follows.

Young Engineers Committee

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Around The Nation With Our Members

Michigan Society Holds Convention And Exhibit In Detroit

The Michigan Society's Annual Convention and Engineering Exhibit was held in the Rackham Memorial Building in Detroit on Friday and Saturday, February 2 and 3. Despite severe weather, approximately 100 engineers and their wives were in attendance.

An Engineering Exhibit offered a display of products, and two Symposiums on each of the two morning sessions attracted capacity audiences. In addition, the ladies were entertained at a special luncheon and later visited the final assembly line of the Ford Motor Company.

Dean Arthur R. Carr of Wayne University's College of Engineering spoke at the Friday luncheon, and John D. Coleman, P. E., vice-president of the Central Area, NSPE, was the speaker at the Saturday luncheon. Colonel Chester Lichtenberg, National Director, Indiana Society, made the principal address on Friday evening at the Rackham Memorial Auditorium.

At the Annual Business Meeting on Saturday afternoon, Mr. Coleman gave the oath of office to President A. F. Plant and congratulated him on his re-election. The convention was concluded with a dinner-dance on Saturday evening at the Sheraton Hotel.

South Carolina Chapter Hears Address On Work Of The F. B. I.

The Piedmont Chapter of the South Carolina Society recently held a dinner meeting at the Civic Room of the Ottaray Hotel in Greenville. The guest speaker for the evening was Mr. James W. Cannon, Special Agent of the Federal Bureau of Investigation.

Mr. Cannon offered suggestions for engineer collaboration with the F. B. I. for Civil Defense, in addition to giving an outline of the methods of operation of his agency.

North Carolina Society Receives Charter At Recent Annual Meeting

The Professional Engineers of North Carolina held their Winter Meeting at the Alamance Hotel in Burlington on February 23 and 24. The highlight of the convention was a charter presentation by Dean Cherry L. Emerson, Vice-President, Georgia Institute of Technology, at a luncheon meeting on February 24.

Activities of the meeting on February 23 included committee reports and a banquet at which the new Society officers were installed. In addition to the charter presentation at the Saturday meeting, Don McConnell addressed the group on "Engineers in Industry," and E. Z. Jones spoke on "The Civil Defense Program in North Carolina."

Albuquerque Scene Of New Mexico SPE Annual Meeting

The Annual Meeting of the New Mexico Society was held on February 24 at the El Fidel Hotel in Albuquerque.

The morning session consisted of registration, a welcoming address by Guy Martin, P. E., President, NM-SPE, an address by Dr. Ralph Carlisle Smith, Los Alamos Laboratories, University of California, on "The Engineer and the Patent Laws" and a talk by State Geologist and Secretary of the New Mexico Oil Conservation Commission Richard Spurrier on "The Industrial Future of New Mexico." After a short intermission and announcements, E. W. Thorson, District Engineer for the Portland Cement Company, spoke on "Long Range Highway Planning."

The afternoon session was conducted in the Civil Engineering Laboratory of the University of New Mexico. A film on prestressed concrete bridge girders was shown, and the meeting concluded with a business session of the Society.

Registration Manual Prepared By Georgia Society Members

A handbook entitled "A Manual for Candidates For Registration as Professional Engineers and Land Surveyors" has been prepared for the Georgia State Board of Registration for Professional Engineers and Land Surveyors by a committee under the direction of Mr. A. O. White, Jr., P. E., member, GSPE.

Mr. White, who is Chairman of the Georgia Society's Engineer-in-Training Committee, was largely responsible for the compilation of the book, assisted by Dr. Roy S. King and other members of the State Board. The bibliography of reference texts was prepared by Dr. Homer S. Weber, chairman of the Society's Education Committee, and the cost of publication was borne by the State Board.

The Society is particularly proud of its part in this production because the booklet marks the first comprehensive manual issued by any State Board in the United States. In preliminary inquiries to all 48 states none could offer one as a sample, although some had instruction sheets, mimeographed sample examinations and miscellaneous aids. Copies of the Manual may be obtained from Mr. R. C. Coleman, Joint Secretary, 111 State Capitol, Atlanta 3, Georgia.

New Officers Installed At Second Annual Meet Of Arizona Society

The Second Annual Meeting of the Arizona Society was held on February 21 at the El Presidio Hotel in Tucson. Registration began at 9:00 a.m., and the morning business session convened at 10 with Arizona President William D. Williams presiding.

At an afternoon luncheon, Mayor J. O. Niemann of Tucson welcomed the membership. Following the luncheon, a business session was held and new Society officers were introduced.

DISCUSS AIR RAID PLANS

Shown above are members of the Niagara Falls Chapter, NYSSPE, as they planned an air raid shelter survey for their area. They are, left to right, seated: Philip H. Goetzman, P. E., Clarence H. Kremers, P. E., and George J. Mack. Standing: Jacob V. Skimin, P. E., Alan G. Hamilton, P. E., and Herbert J. Green, P. E.

Robbins Addresses Recent Engineering Conference At V.P.I.

The Virginia Polytechnic Institute Association for Advancement of Engineering held its second annual Engineering Conference in Blacksburg, Virginia on February 23 and 24. NSPE Executive Director Paul H. Robbins addressed the opening convocational session on "Engineers in Mobilization."

Also included on the program with Robbins were Dr. Thomas A. Boyd, Research Consultant, General Motors Corporation, who spoke on "This Research Business," and Mr. Phillip Sporn, President, American Gas and Electric Service Corporation, whose topic was "The Engineer, The Machine Age, and the World of Tomorrow."

The afternoon's activities included a luncheon at which Dr. Walter S. Newman, President, V. P. I., was the guest speaker, a symposium conducted in each department under the direction of students on subjects of professional interest and the viewing of student displays.

In the evening a banquet was held, John A. Umlauf, President, V. P. I. Association for the Advancement of Engineering, presiding. Guest speaker was Leo J. Pantas, Manager, Salem Division, Yale and Towne Manufacturing Company.

Saturday was devoted to displays and exhibits by all engineering students and employment interviews for June graduates of the school. The conference closed with a dance held in Squires Hall on Saturday night.

Niagara Falls Group Meets To Discuss Civil Defense Plans

The Niagara Falls Chapter of the NYSSPE met recently at the Hotel Niagara to discuss plans for a forthcoming survey of structures in the area to determine the best shelter potentials in the event of an atomic attack.

The survey will be conducted by the Chapter at the request of the Niagara Falls Office of Civil Defense, and more than 75 members will participate.

Mr. W. F. Anderson, P. E., who is chief of engineers for the Niagara Falls OCD, outlined future plans and requested the public's cooperation in the survey. The inspection survey will cover stores, hospitals, clubs, municipal and commercial buildings, churches and schools. Minor structural alterations will be recommended where advisable and on completion of the engineering survey, the report will be given to the OCD.

New York State SPE Holds Winter Meeting In Albany

The New York State Society held its Mid-Winter meeting at the Ten Eyck Hotel in Albany on February 2 and 3. Robert A. Sovik, P. E., President, NYSSPE, presided at the meetings, and Julius A. Kaestner, Jr., P. E., President, Albany County Chapter, NYSSPE, was host for the function.

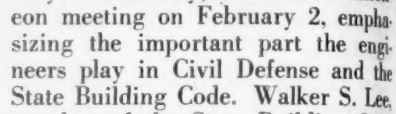
During the meeting, the Society took a stand against socialized medicine and issued a statement saying, "Any motion to nationalize any profession must eventually weaken the position of other professions."

The Honorable Erastus Corning, Mayor of Albany, addressed a luncheon meeting on February 2, emphasizing the important part the engineers play in Civil Defense and the State Building Code. Walker S. Lee, member of the State Building Code Commission also spoke on "Freedom of Design Under the State Building Code."

Bismarck Chapter Of NDSPE Hear Radio Consultant Speak

The Bismarck Chapter of the North Dakota Society held a dinner meeting on March 6 at the Grand Pacific Hotel in Bismarck.

Special guests of the Society were members of the North Dakota Board of Administration and their radio consultant, Mr. Eugene Zobel. Mr. Zobel described the state-wide radio police network that is being installed.



New Jersey Society of Professional Engineers—27th Annual Convention and Exposition, April 6 and 7. Haddon Hall, Atlantic City.

New York State Society of Professional Engineers — Silver Anniversary Convention and Annual Engineering Industries Exposition, May 10, 11 and 12. Statler Hotel, New York City.

Professional Engineers of Colorado—Annual meeting, May 18, Denver, Colo.

Pennsylvania Society of Professional Engineers — 16th Annual Convention, May 18 and 19. Allentown.

Tennessee Society of Professional Engineers and Georgia Society of Professional Engineers—Joint Summer Meeting, June 15 and 16. Lookout Mountain, Tennessee.

National Society of Professional Engineers—Annual Meeting, June 13, 14, 15 and 16. Hotel Nicollet, Minneapolis, Minnesota.

Szekely Recently Elected To 1951 ASHVE Office

Mr. Ernest Szekely, P. E., president of the Bayley Blower Company of Milwaukee, Wisconsin, and member of the Wisconsin Society, was recently elected First Vice-President of the American Society of Heating and Ventilating Engineers.

Mr. Szekely was graduated in 1910 from the University of Budapest with an M.E. degree and then joined the teaching staff of the University. In 1914 he joined the staff of the American Blower Company, Detroit, as research engineer and in 1928 he became chief engineer of the company he now heads.

Annual Convention Held By Kansas SPE At Salina Recently

The 1951 Annual Convention of the Kansas Society was held on February 23 and 24 at the Lamer Hotel in Salina.

The Convention was opened with a luncheon where the guest speaker, Dr. Jack VanDerhoof, Professor of History, Kansas Wesleyan University, spoke on "Effect of Engineering on Agriculture." A business session was held on the afternoon of the 23rd, followed by professional group meetings. On Friday evening, a dinner party was held at which Kinsley G. Givens, Professor of Speech at Kansas State College, addressed the Society.

Following a business session on the morning of the 24th, a symposium on engineering education was held. Speakers and their topics included: Dr. D. G. Wilson, University of Kansas, "Are Schools Producing the Right Kind of Engineers?"; Dean M. A. Durland, Kansas State College, "Are Schools Producing Enough Engineers?"; and Acting Dean Kenneth Razak, University of Wichita, "Advancement in Engineering Education."

After the symposium, the Annual Dinner Meeting was held in the Salina Room of the hotel, and NSPE President S. L. Stolte, featured speaker, addressed the group on "The Engineering Profession in a Garrisoned Economy."

The ladies' program for the convention included a special luncheon, bridge party, informal dinner party and a bingo party.

Texas SPE Holds 15th Annual Convention In Mineral Wells

The Fifteenth Annual Convention of the Texas Society was held on January 25, 26 and 27 at the Baker Hotel in Mineral Wells. Included among the speakers for the event were DeWitt C. Greer, Texas State Highway Engineer; John Ben Shepperd, Secretary of State for Texas; S. L. Stolte, President, NSPE; William J. Murray, Chairman, Texas Railroad Commission; Daniel J. Martin, Hughes Tool Company; T. C. Forrest, Texas National Director and Dean W. R. Woolrich, University of Texas.

Mr. Shepperd, in addressing the group, said that statesmen today should pattern their political aspirations with ethics similar to those of the professional engineer. President Stolte pointed out in his talk that while the last war was one of technology, the next one will be doubly so. He added that our main advantage over our adversary is our brainpower working for the good of the people.

TELLERS COMMITTEE REPORTS ON 1951 ELECTION

On February 13, 1951, the NSPE Tellers Committee met in the National Headquarters Offices and tabulated the vote on the election of the Society's 1951 officers and the three constitutional amendments included on the ballot. The Tellers Committee is composed of: H. W. Dannettell, Jr., Chairman; Arthur Gandy, Jr.; P. F. Harper; Terrill Coons and Charles T. Miller.

The results of that tabulation are:

Officers:	
For President:	
L. L. Dresser	7867
Others	23
For Vice-President:	
Northeastern Area:	
G. J. Nicastro	7612
Others	42
Southeastern Area:	
J. F. Reynolds	7569
Others	5
Central Area:	
Chester Lichtenberg	7632
Others	8
North Central Area:	
C. G. Roush	7614
Others	1
Southwestern Area:	
T. C. Forrest, Jr.	7607
Others	4
Western Area:	
DeWitt Griffin	7587
For Treasurer:	
Russell B. Allen	7760
Others	6
Blank ballots returned	324
Invalid ballots returned	114
Constitutional Amendment No. 1	
(Provides for any member of NSPE to be recognized to speak on any Society matter at Annual Meetings.)	
Approve	7695
Disapprove	188
Blank and invalid ballots	482
Constitutional Amendment No. 2	
(Provides for number of National Directors and their assignment to duty by their State Society. Amendment also states that Board shall govern policy and NSPE affairs between Annual Meetings.)	
Approve	7831
Disapprove	141
Blank or invalid ballots	393
Constitutional Amendment No. 3	
(Provides for establishment of a Nominating Committee which will represent all NSPE administrative areas and have at least 3 members experienced in NSPE affairs.)	
Approve	7871
Disapprove	183
Blank or invalid ballots	311
General	
Number of ballots cast	8365
Membership as of December 31, 1951	23431
% of membership casting ballots	35.7%

Monmouth Ocean Chapter, NJ SPE, Hears Minister Speak

On March 7, the Monmouth Ocean Chapter of the New Jersey Society met at the American Hotel in Freehold, New Jersey, to hear their guest speaker, Reverend Chester A. Galloway discuss "Human Engineering."

Reverend Galloway is a graduate electrical engineer and was a chaplain in the United States Navy for several years.

Colonel Bleakley Returns To Active Air Force Duty

Colonel William E. Bleakley, member of the Oklahoma Society, has been called back to active duty in the Air Force as of March 10. Colonel Bleakley has served for the last four years as Executive Secretary of the Oklahoma Society and also as Editor of the Society's publication, *The Oklahoma Professional Engineer*.

Bleakley has served a total of 32 years in the Air Force, 12 of which have been in uniform and twenty in the reserves. Mr. C. S. Worley, P. E., will replace Colonel Bleakley as Executive Secretary for the Society as well as Editor of the magazine.

Minnesota SPE Holds Annual Meeting In Minneapolis

The Minnesota Society held its Annual Meeting in association with the annual convention of the Minnesota Federation of Engineering Societies at the St. Paul Hotel in Minneapolis from February 20 through 23.

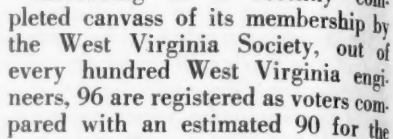
Tuesday, February 20, was devoted to the opening of exhibits and a joint meeting of the Society's Council and House of Delegates. The next day two more of the joint meetings, a luncheon and a general meeting of the Minnesota Society took place.

Technical Group Conferences were introduced on February 23. At the afternoon session, Mr. S. L. Stolte, President, NSPE, addressed the groups on "The Function of the Engineer in a Wartime Emergency." Following Stolte's speech, panel discussions were held on the impact of an emergency on electric power distribution systems, communications systems, water and sewerage systems and railroad transportation.

A banquet, at which Mr. S. L. Stolte served as Toastmaster, and a Grand Ball concluded the Conference.

West Virginia Society Conducts Voting Survey

According to a recently completed canvass of its membership by the West Virginia Society, out of every hundred West Virginia engineers, 96 are registered as voters compared with an estimated 90 for the entire eligible state population; 81 voted in the last primary compared to 24 for all West Virginia; and 93 in the 1950 general election as compared to 59 for the entire state. These figures are based on replies from approximately 900 engineers, including all branches, among which chemical, civil, electrical, mechanical and mining predominate.



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(*Continued from page* 13)

"governor," every other man in Washington, D. C., a "senator," and in Germany, whether carrying a satchel or not, a "doctor."

Ironically, the nation's salesmen are currently attempting to change their name to "marketing engineers." A corporation president, an ex-salesman himself, is the chief propounder of this appellation. Regardless of whether the title is used by corporation presidents or shoe-string peddlers, the use of our identification will still be promiscuous.

This is not all. We as engineers, may just as well expect further encroachment in the way of misuse of our title. This encroachment, however, should not be a grievance as it is an evidence of our own professional prestige.

Our position in society is a coveted one and to imagine that the public confuses the professional engineer with the steam boiler engineer in the basement of an office building, because both are called "engineers," is to say that the public cannot distinguish between a hat and the Kentucky horse race because each is called a derby. And don't you try to beg the question by pointing out that a part of our population pronounce the horse race "darby."

In delving further into the definition of professionalism, I fail to find any indication of requirements as to the absence of manual labor or code of ethics. The so-called requirement that a profession is not a profession unless it implies the absence of manual labor, is a hang-over from the time when manual labor was degrading and man's importance increased in direct proportion to his freedom from it. The Chinese aristocrat, for instance, grew horrible-looking long nails to prove ostensibly that manual labor was unknown to him.

A number of learned professions which have established precedence, must practice manual labor. Surgery, whether it be internal, plastic, dental, etc., etc., etc., is a good example. Would it be rational to exclude surgery as a profession on this count? Certainly not! To decide affirmatively would mean that the medic who practices the branch of the profession which approaches exactness, could no longer be considered a professionist. Consequently, the standing of the medical profession is not impaired by the use of manual labor.

Regarding the code of ethics, this can be said. It is nothing more than a set of rules which must be observed

(*Continued next page*)

Pasadena Chapter Hears Address By Jessup On Patent Law

The Pasadena Chapter of the California Society met on March 15 at the Pasadena Athletic Club to hear Mr. Warren T. Jessup, P. E., speak on "Patent Law." In addition to being a registered electrical engineer, Mr. Jessup is a licensed attorney.

Mr. Jessup gave a summary of patent law and illustrated his talk by showing slides of important and amusing patents.

Wheeling Chapter Hears Saviers Speak On Television

The Wheeling Chapter of the West Virginia Society met on February 15 at the McLure Hotel in Wheeling, and heard Mr. George D. Saviers, Communications Engineer for the Westinghouse Electric Company who spoke on "Television—Yesterday, Today and Tomorrow."

At the conclusion of Mr. Saviers' talk, a question and answer period was held.

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(*Continued from previous page*)

by those playing a game. Whether implicit or explicit, and whether called by this or any other name, codes of ethics came into existence with the first association of two animals. Among humans, it is the embodiment of self-imposed restrictions with the aim of giving individuals collective benefits.

A code of ethics is a law of morals applicable to a group of men performing the same activity or engaged in the same endeavor. It is, as Plato said of morals, the restrictions imposed by the weak upon the strong. Codes of ethics are necessary in human activity. They are essential for keeping harmony and peace between competitive groups and for strengthening the bonds of an association to guarantee to those inside and out the observance of honesty and dignity among the people concerned. But codes of ethics in themselves do not make a profession.

It is even possible for a code of ethics to hamstring a group. As an example, let's take the policy of advertising. "Ethics" require that advertising be absent from the promotion of the learned professions. Actually however, how can my neighbor know of my work or its quality, if I conceal it from him? How am I going to be a professional if I cannot earn my livelihood from what I have chosen as my profession?

This is one of the serious realities we must face. This is a problem that our professional and technical societies must quickly solve through collective thinking and unified programs. Our consciousness is constantly taxed by propaganda in its various forms, whether advertising, public education, general appearances, or publicity. This form of directed information, the only means of dissemination in our economy, has attained proportions of collosal magnitude, and yet we, by disregarding it, have failed to free ourselves from that barrier of austerity that tends to isolate us from society.

As for recognition, if the admiration for our present-day conveniences, including electric lighting, telephones, automobiles, airplanes, television, etc., etc., etc., has not been interpreted by mankind as the achievements of the engineer, it is our fault for not making the public conscious of the part that we engineers and technologists have played in making our material world what it is.

Our modern gadget-happy civilization glorifies the conveniences which surround it. A button-pushing public stands in ever-growing awe of these bewildering marvels. Scores of popular magazine and newspaper articles have attempted to explain scientific progress to the layman, and thereby increase his respect for the profession responsible for so much of the physical evidences of the progress. The public palpates it, but knows only vaguely the group which delivers these marvels of science to him in an enjoyable form. All this because of that curtain of silence with which we have cloaked ourselves!

To correct this fault, we must seek a new direction. We must cease quibbling whether we are professionals, whether possession of a code of ethics is the essential mark of a profession, or the question of the derivation of our title, and direct our energies to further our organizational development.

The tremendous technological contribution that we have brought about for mankind have created a *phase displacement* in the progress of humanity. This in turn has simultaneously created a progressive gap between society and the engineering profession. It is this ever-widening gap that bewilders us. To close it is for us to take an active part in every phase of life in which the public is concerned.

We have mentioned integrity. Integrity does not only mean virtue, conscientiousness and up-standingness, but *completeness*. Through conscientiousness and up-standingness, our group has progressed beyond sight of society. But for us to fulfill the requirement of completeness, we must become a part of the community, the church, the people and the nation. This most important function has been neglected by us.

Because of the nature of their professional activities, and our failure to come in contact with the people, the social influence of the lawyer, the doctor and the clergyman has become so prominent as to engender in us, as professionals, our unfounded inferiority complex.

It is not enough merely to tell the world we exist. Our concern over social, economic and political issues must be openly discussed, inasmuch as they affect our over-all destiny and that of our future generations. We must express this concern publicly as a manifestation of our alertness toward the well-being of mankind. But this can only be accomplished by individual and collective positive action.

On the local level, we engineers must

(*Continued on page* 34)

About the Author ...

Dr. Calva

Dr. Jose Baraquiel Calva, internationally known Chemical Engineer, is founder and president of the J. B. Calva & Company, a consulting and research organization located in Minneapolis. His broad engineering experience stems from a colorful background as an international student, college professor, research director, chemical plant designer and builder, and businessman. His scope of activities, among others, include work in the paper and pulp, petroleum, fur and tanning, textile, cosmetics, ballistics, explosives, dyestuffs and heavy chemical industries.

His technical contributions are responsible for the founding of several domestic and foreign industrial enterprises.

Dr. Calva is a member of the principal honorary-scientific and technical societies and is active in the Minnesota Society of Professional Engineers. He holds the bachelor and technical degree in Chemical Engineering from the University of Pennsylvania, and the National University of Mexico. He has done postgraduate work in several universities in America and abroad. Dr. Calva is listed in "International World Who's Who," "Who's Who in Engineering," and "Who's Who in Chemistry." He is a member of the seven-man Public Relations committee of the Association of Consulting Chemists and Chemical Engineers, Inc.

Dr. Calva received world-wide recognition for his contribution to the fur industry in making imitations of fine furs from inexpensive pelts such as the ordinary sheepskin.

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"Think" Forum

(*Continued from page* 12)

Prof. Hoadley . . .

MANY engineers are seriously concerned about the steps that should now be taken to assure a supply of men trained to enter the engineering profession to meet the needs of the military and of our civilian economy. This is shown by the number of articles that have recently appeared in THE AMERICAN ENGINEER on that subject. The Society's policy statement on "The Engineering Profession in National Security" included a short section on the training of engineers in the present emergency as part of its much broader consideration of the most effective use of the engineering profession as a whole. In the February issue we find a report of the statement which NSPE Executive Director, Paul H. Robbins presented to the Armed Services Committee of the Senate on January 24, in which he ably outlined the need for continuing the training of young engineers and scientists and made some suggestions as to how that might be accomplished. In the same issue Charles D. Townsend, P.E., presents some suggestions as to how the ROTC program might be expanded in the colleges to make possible a continuing supply of young men with engineering training.

From the present outlook we are going to live through a period of several years during which international tensions will make it necessary for us to maintain a continuing state of military preparedness. I am optimistic enough to think that the situation will not be worse than that of the present Korean war. While life will not be as pleasant as it has been, I hope that as far as possible our freedom to do, think and believe as we please may be maintained. It seems to me that the problem we face in setting up a long time program is essentially different from that of meeting a draft for immediate battle.

Our collective skill in designing, building and operating the modern machine whether it be automobile, printing press, jet fighter or automatic computing machine is probably one of our greatest military and civilian assets. We cannot, from the military standpoint, compete in numbers. We must use equipment and technically trained personnel to best advantage if we are to make the most of our natural assets. I believe that it is more important to us now to continue the training of our college men even if it means a postponement in their military service. You will notice that the suggestion is for a deferment and not for an exemption.

The experience of the British might be of interest and value at this point. The March *Atlantic Monthly* reports that in Britain all of the University students are given the choice of taking their two years of military service immediately after high school or on completing their University work. The two years' military service must be completed before a man becomes 26. At the present time, 78,500 university students (this includes arts students as well as the students taking engineering, science and medicine) have had their military service deferred. University deferments represent slightly more than 10% of the 750,000 British that the *Atlantic Monthly* reports as being under arms. This comparatively large number of men are being kept in the universities in spite of the heavy demands on British manpower caused by a military establishment that, in proportion to population, is next to largest of the non-Communist countries. This deferment is not the granting of a privilege to a favored class by a Conservative Government. It is the considered action of a Labor Government in making use of its talented young men and of the training skills of its universities.

The world has achieved brilliance without wisdom, power without conscience. Ours is a world of nuclear giants and ethical infants. We know more about war than we know about peace, more about killing than we know about living —This is our 20th century's claim to distinction and to progress.

—General Omar N. Bradley

If we are justified in planning on a long-term basis, I feel that the interests of the country will be best served if students who are now in college are granted deferment—not exemption—of military service until graduation providing they maintain satisfactory academic standards. At the present time it would seem that after next June all college students over 18 will be subject to immediate draft, unless they are in ROTC or similar military units. It seems to me that the natural time for a young man to give his military service would be either before or immediately after completing his college course. Should the young man decide to take his college work before his military service the Army, Navy, Air Corps or Marines would then have the advantages of this four year discipline, an advantage that seems to be valued highly by business and industry. I would like to see the college program itself kept on a strictly civilian basis though this does not preclude work in ROTC units or summer military training. Keeping the program on a civilian basis insures the student his choice of program and college and along with that freedom goes the obligation of paying the bill, a freedom that I know something about as I have two daughters who are going through college. It seems to me that wherever possible the individual family and not the Federal Government should be responsible for educational costs.

The lives of young men of college age and the colleges themselves will both be greatly affected by the present period of stress and strife. The collective and individual thought of the engineering profession and of its members should be very valuable in working towards a solution of this part of the manpower problem that will enable our country to use the young men and the training facilities available at the colleges to the best advantage.

Nothing Wrong

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become civic leaders in our community. We must partake in the policy-making of business organizations. We must be prepared as public speakers. We must take active part in municipal as well as educational programs, not as politicians or dogmatic academicians but as practicing technologists, to personally come in contact with our community and to cultivate youth, for they are the generation that will be tomorrow's public.

On a national scale, through our professional and technical associations and societies, we must alert ourselves on domestic and international issues. As a part of these organizations we must contribute to the clarification of the issues and tell the world unequivocally where we stand. We must help our associations in setting up machinery for policy-making, for research education, for legislative information, for public relations and for all other activities which are the essence of life and pride of organizations.

This is our direction. This is where our energies must be expended to close our bewildering gap. No, there's nothing wrong with us engineers, that personal integrity and collective positive action will not correct.